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The peculiar nature of psych verbs and experiencer object structures

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Abstract

Psych verbs in general and experiencer object verbs in particular are exceptional because they often do not follow generalizations that have been made about verbs and structure types in the theory of grammar. Such so-called *psych properties* can be observed in many languages and concern central linguistic but also language-specific phenomena. The existence of psych properties gives rise to the assumption that verbs such as *frighten*, *appeal to* and *worry* have a special position within the grammatical system as they stand in opposition to verbs that do not primarily express mental or emotional concepts, e.g., *call*, *warn* or *visit*. The present work addresses this divergence and investigates the characterizations of psych predicates.

Followed by an overview of the central assumptions and analyses for psych predicates, two studies on German exceptional word order and exceptional binding are presented which confirm that experiencer object psych verbs, in contrast to non-experiential causative and action verbs, license flexible argument order as well as Backward Binding. Given these findings, the properties of experiencer object verbs are scrutinized in more detail in more detail — first, by taking a closer look at the class of experiencer object verbs itself, and, second, by comparing them with non-psych structures that share some of their crucial features.

As established in the literature on psych predicates, only a specific type of experiencer object verbs exhibits psych properties, i.e., stative structures in contrast to dynamic agentive and causative structures. For the characterization of stative experiencer object structures and their distinction from other possible readings, they are being evaluated with particular emphasis on the role of causation and under consideration of the referential properties of the stimulus (subject) argument. Supported by empirical evidence, the discussion reveals that stative experiencer object verbs can build factive as well as non-factive structures. This is in accordance with previous accounts that have shown that experiencer object verbs do not constitute a homogeneous verb class at the lexical level.

Finally, an in-depth comparison between experiential and structurally similar non-experiential verbs helps to distinguish and locate experiencer object verbs within the grammar system. The predicate classes of comparison are verbs of stative causation (locative *obstruct*-type verbs), propositional attitude verbs (*regret*-type), dispositional verbs (*endanger*-type) and evaluative predicates (*good/bad*-type). It appears that, given the similarities to all these predicate types, several different stative readings are avail-

able for experiencer object verbs: stative causation, factive attitude reports and evaluative statements. However, they all share the role of the experiencer in common: the verbs denote mental and emotional concepts and select a cognitively participating individual in a non-prominent (i.e. object) position. This indicates that it is exactly this experiential nature that sets experiencer object verbs apart from other predicates.

Zusammenfassung (German abstract)

Durch ihr besonderes Verhalten haben psychologische Verben, und Experiencer-Objekt-Verben im Besonderen, in der linguistischen Forschung Berühmtheit erlangt. In vielen Sprachen konnte beobachtet werden, dass das Verhalten dieser Verben oft von grammatischen Generalisierungen abweicht, die über Prädikate und Strukturen bis dahin gemacht wurden. Diese so genannten 'psych properties' (Psych-Eigenschaften) betreffen zentrale linguistische Phänomene sowie sprachspezifische Eigenschaften und sie geben Anlass anzunehmen, dass Verben wie *frighten* ('fürchten'), *appeal to* ('gefallen') und *worry* ('beunruhigen') eine besondere Stellung im grammatischen System einnehmen. Sie stehen hier Verben gegenüber die nicht primär mentale oder emotionale Konzepte ausdrücken, wie zum Beispiel *call* ('anrufen'), *warn* ('warnen') or *visit* ('besuchen'). Die vorliegende Arbeit nimmt diese Beobachtungen auf und untersucht die besonderen Eigenschaften der Psych-Prädikate.

Nach einem Überblick über zentrale Annahmen und Analysen zu Psych-Prädikaten werden jeweils zwei Studien zum Deutschen vorgestellt, die nachweisen, dass Experiencer-Objekt-Verben, im Gegensatz zu nicht-experientiellen Kausativ- und Handlungsverben, flexible Argumentstellung erlauben, sowie Rückwärtsbindung (Backward Binding) lizensieren. Angesichts dieser Ergebnisse werden die Eigenschaften von Experiencer-Objekt-Strukturen im Anschluss genauer betrachtet – zunächst indem die Verbklasse selbst untersucht wird, und zweitens indem Experiencer-Objekt-Verben mit solchen nicht-experienziellen Verben verglichen werden, die entscheidende Eigschaften mit ihnen teilen.

Wie schon in der Literatur zu Psych-Prädikaten gezeigt wurde, können nur spezifische Typen von Experiencer-Objekt-Strukturen Psych-Eigenschaften zeigen – und zwar in ihrer Verwendung als Zustandsverben, im Kontrast zu dynamischen agentiven und kausativen Strukturen. Um die stativen Experiencer-Objekt-Strukturen zu charakterisieren und von anderen Lesarten abzugrenzen werden sie hinsichtlich der Relevanz von Kausativität sowie in Bezug auf die referentiellen Eigenschaften ihres Stimulus-Argumentsn (Subjekt) untersucht. Gestützt durch empirische Befunde zeigen die Untersuchungen, dass Experiencer-Objekt-Strukturen faktive sowie nicht-faktive Strukturen bilden können. Dieses Ergebnis stimmt mit bisherigen Untersuchungen überein, die besagen, dass Experiencer-Objekt-Verben auf lexikalischer Ebene keine homogene Klasse bilden.

Um sie noch besser im grammatischen System lokalisieren zu können, werden ex-

perienzielle Verben abschließend mit strukturell ähnlichen nicht-experienziellen Verben verglichen. Die Vergleichsprädikate sind Verben stativer Kausativierung (lokative, *obstruct* 'verstopfen'-Verben), Verben der propositionalen Einstellung (*regret* 'bereuen'-Verben), dispositionelle Verben (*endanger* 'gefährden'-Verben) und evaluative Prädikate vom Typ *gut/schlecht*. Angesichts der deutlichen Eigenschaftsüberlappung mit allen genannten Prädikaten, scheint es mehrere stative Muster für Experiencer-Objekt-Verben zu geben: stative Kausativierung, faktive Einstellungsberichte sowie evaluative Aussagen. Was alle stativen Experiencer-Objekt-Strukturen jedoch gemeinsam haben, ist die Rolle des Experiencers: Die Verben denotieren mentale und emotionale Konzepte und selegieren kognitiv beteiligte Individuen in einer nicht-prominenten (d.h. Objekt-) Position. Das weist darauf hin, dass es die experientielle Natur der Verben ist, die sie von anderen Prädikaten abgrenzt.

Pre-published articles

Chapter 3 ist based on articles published during the doctoral phase. The references are given below.

Section 3.1:
Temme, Anne & Verhoeven, Elisabeth. 2016. Verb class, case, and order: A cross-linguistic experiment on non-nominative experiencers. *Linguistics* 54.4. 769-814.

Section 3.2:
Temme, Anne & Verhoeven, Elisabeth. 2017. Backward binding as a psych effect: A binding illusion? *Zeitschrift für Sprachwissenschaft* 36.2. 279-309.

Contents

List of Abbreviations

ACC	Accusative
AG	Agent
BB	Backward Binding
BT	Binding Theory
CAUS	Causative
CAU	Causer
DAT	Dative
DP	Determiner Phrase
EXP	Experiencer
EO	Experiencer Object
ES	Experiencer Subject
FID	Free Indirect Discourse
GEN	Genitive
INST	Instrument
LOC	Locative
LF	Logical Form
NP	Nominal Phrase
NOM	Nominative
OS	Object-before-Subject
PASS	Passive
PST	Past

PAT	Patient
POV	Point-Of-View
PP	Prepositional Phrase
QP	Quantifier Phrase
S	Sentence
SO	Subject-before-Object
STIM	Stimulus
SM	Subject Matter
TH	Theme
TOP	Topic
VP (V)	Verbal Phrase (Verb)

1. Introduction

Experiencer object verbs (henceforth EO verbs) such as *frighten*, *astonish*, *matter (to)* or *appeal (to)* are an important subclass of psychological predicates, particularly because of their relevance when it comes to assessing exceptions to semantic or syntactic phenomena in various languages. These phenomena have often been referred to as 'psych properties' and they generally cover diverging behavior of EO verbs in comparison to other two-place predicates without an experiencer argument.

Because of their unique properties and relevance, experiencer object verbs received substantial attention from the research community over the years including theoretical, typological, as well as experimental investigations. Despite recent advancements, we still lack a more profound understanding of the structure of these verbs, and the derivation of psych properties in particular. Building upon previous achievements, this dissertation provides new data and takes new perspectives to tackle some of the remaining challenges related to psych verbs. The leading research questions are: what is the validity, scope and source of special psych verb properties, and what are the defining properties of EO structures?

Anecdotally, psych verbs have a rather ambivalent reputation among linguists. On the one hand, their special behavior inspires the work on linguistic interfaces, while, on the other hand, researchers treat them with caution when they are used as evidential data for the very same reason. The main reason for this precaution is that the nature of psych verbs is not fully understood and that they, although fascinating, seem to behave somewhat "beyond control". The impression arises from several peculiarities associated with psych verbs and experiencers, mainly concerning the validity and the scope of psych properties, and the definition and delimitation of the verb class.

First, when it comes to special psych properties, there are different points of view as to whether psych verbs are special at all and at what level this may affect the linguistic rule systems. Moreover, the effects reported for different languages and phenomena are often based on single, and sometimes inconsistent judgments of singular structures, which is a rather weak fundament for drawing conclusions. A second set of problems

concerns the definition and delimitation of the verb class. Under close inspection, it becomes apparent that the class of psych verbs is quite heterogeneous, mainly due to their high structural and aspectual variability. This makes it difficult to define the class distinctively and to identify the properties that are crucial for explaining the special behavior of experiencer object verbs. In general, many linguistic features that have been discussed in this context are inter-linked and sometimes not fully understood themselves, e.g., animacy, control, subject status, topicality, quirkiness, experiencer, and aspectual features such as stativity or inchoativity, causality, among many others. Moreover, is not clear to what extent EO verbs differ from other predicates.

Depending on the perspective, linguistic research deals with psych verbs either as the phenomenon under investigation or makes use of their exceptional properties to gain insight into different linguistic levels and their interfaces in theoretical as well as experimental work. The present work takes the former perspective and investigates the characteristics of experiencer object verbs in order to learn more about specific properties and features they potentially share with other predicates. For this, the EO verbs' variable and often ill-defined properties serve as a central motivation, as the understanding of the nature of these verbs is treated as a necessary precondition for having the latter perspective on psych verb research, i.e., aiming to gain knowledge about the linguistic system based on psych verbs and their properties.

Three major issues will be addressed in this dissertation: *(i)* the confirmation of psych properties in German, *(ii)* the semantic characterization of experiencer object verbs and *(iii)* their isolation from non-psych verbs. In the following, I briefly illustrate the outline of the dissertation.

Chapter 2 provides the relevant background information for the subsequent chapters, i.e., the basic notions and concepts associated with psych verbs and experiencers and their challenging character when it comes to grammar modeling. The so-called *Linking Problem* basically describes a mismatch between the semantic and the syntactic realization of the arguments of psych verbs. Interlinked with this, the *Experiencer Object Problem* relates EO structures to structures with "regular" argument realization patterns. It asks how and why experiencer objects are less prototypical objects compared to, for example, theme or patient objects. Furthermore, the chapter demonstrates that the issues on psych verbs and experiencers are far from being solved. I discuss previous suggestions regarding the structure of EO verbs, which mainly focus on features such as stativity and causation.

Chapter 3 investigates the validity and scope of psych properties. Two studies on

flexible argument ordering and Backward Binding with dative and accusative EO structures in German are presented. This enhances the empirical foundation for psych properties, as the studies take into account numerous observations by several participants on various structures under controlled conditions. It will be shown that EO verbs, as opposed to causative verbs with inanimate subjects, license object-initial orders, and that they license Backward Binding compared to two-place agentive verbs. Both sets of experiments also control for the main influence factors for the two phenomena, i.e., the relevance of contextual licensing of object-first structures through topicalization as well as possible genericity-driven licensing of illusory Backward Binding. Altogether, the studies confirm the special status of dative and accusative EO structures and substantiate the need for respective explanations.

It is by now well-known that not EO verbs per se but a distinctive subtype behaves exceptionally: stative EO structures. Based upon the previous confirmation of psych properties of EO verbs, **Chapter 4** primarily approaches the nature of stative EO structures. First, taking up observations in the literature, I take a closer look at the potential interpretations of EO verbs and their respective properties, mainly focusing on the involvement of causation as well as the type of subject they select. While non-stative EO structures select prototypical agents and causers, the subject, or *stimulus argument*, of the stative use appears to be more abstract. Ambiguous nominalizations and the use of placeholder nominals sometimes conceal their referential nature. Unraveling the options, the discussion of nominal underspecification with EO structure stimuli reveals at least two sub-structures: *(i)* EO structures with fact stimuli and *(ii)* non-factive EO structures which involve quality-denoting stimuli. Following this, I discuss properties that differentiate the two sub-structures and what unifies them, in order to identify distinctive features of stative EO verbs in general. Among the features of comparison are, for example, the different PPs that occur in EO passives (*fascinated by/delighted about*).

Chapter 5 investigates to what extent special EO verbs differ from verbs with similar structural or selectional properties. In order to isolate the building blocks of a proper EO psych verb structure, they are first compared to verbs of stative causation (*obstruct*-type verbs) based on their time course and the type of causation involved. Second, the special EO verbs' licensing of clausal arguments, as subjects in particular, links them to propositional attitude verbs and evaluative structures. The detailed comparisons show that EO verbs may build structures of stative causation but also proposition-selecting evaluative structures. Finally, the emergence of argument-like affected evaluators with certain adjectives in German supports the relevance of two dimensions for the EO verb

meaning, i.e., causation and evaluation. In general, the striking similarities with structures outside the psych verb domain suggest that any psych-specific property needs to be described on a level other than the thematic or templatic structure of EO verbs.

Chapter 6 concludes and summarizes the findings of this dissertation. The summary also includes open questions motivating avenues for further research, with particular emphasis on hypotheses that directly arise from the discussion and findings of this work.

During the course of research it also becomes apparent that EO verbs very frequently appear in contexts of rather independent phenomena, i.e., without being the focus of the considerations. Examples are the lexical-aspectual flexibility of predicates, exceptions to argument structure operations, the issue of causation and causal efficacy, the inventory of natural language semantic ontologies, definiteness, factivity, subjectivity, evidentiality, and many others. These areas also draw on findings regarding the nature of EO verbs and experiencers and will be addressed in the respective sections.

As for the scope of this dissertation, psych verbs by now constitute a broad area of research. Therefore, this dissertation does not aim to capture all associated structure types and properties. Instead, this work targets stative EO structures in general, and accusative EO structures in particular, as they are a much-debated class of predicates with a vague status when it comes to their lexical-semantic and syntactic structure, mainly in terms of causality, dynamicity and types of selected arguments. The specific properties and the interpretational potential of EO structures are the core focus. The main finding can be summarized as follows: when EO structures are not agentive or involve canonical external causers they can denote instances of internal causation or statements of subjective evaluation. These different options can explain both some of the identified properties of EO verbs as well as parts of their heterogeneous behavior. They also raise new questions concerning the interaction of the linguistic system and the conceptual experiential domain.

As for the language under investigation, the structures presented in this dissertation will be a mixture of English and German data, with several references to other languages. I will refer to the established examples as they are, and present some adapted English examples as well. Because of the sometimes very subtle contrasts within and between structures that are being discussed, however, I chose my native language German as the main source of information. Moreover, I assume that precisely at the lexical-conceptual level, there is some potential for cross-linguistic differences, e.g., through the slightly different semantic contributions of lexical elements. Nevertheless, I as-

sume that many of the presented hypotheses and assumptions can be generalized to other languages as well.

2. The peculiar nature of psych verbs

The most significant identification feature for psychological (or 'psych') predicates is that one of their arguments is in a mental or emotional state. This argument is called *experiencer* (abbreviated as 'EXP'). In two-place structures, the corresponding counterpart is called *stimulus* (STIM). An example structure including both arguments is given in (1).

(1) The question$_{\text{STIM}}$ irritated Laura$_{\text{EXP}}$

This work mainly deals with psychological verbs, although there are interesting cases of psych predicates with adjectival or nominal cores, which build psych structures in combination with copulas, e.g., *so. is sad*, *sth. is comfortable/embarrassing to so.* or *an honor/mystery' for so.* The list in (2) is intended to give a basic impression of the verbs of this conceptual-semantic field.

(2) to admire so., to love so., to regret sth., to shock so., to frustrate so., to delight so., to appeal to so., to matter to so.

Probably the most striking property of psych predicates is the morpho-syntactic variability they exhibit. Consider the structures in (3) to (6). See Klein & Kutscher (2005) for the illustration of all possible cases in German.

(3) One-place verb with nominative EXP[1]

Laura staunt.
Laura.NOM wonders
'Laura wonders.'

(4) Two-place verb with nominative EXP

Laura liebt das Lied.
Laura.NOM loves the.ACC song.ACC
'Laura loves the song'

[1] Alternatively, *staunen* ('wonder') can be analyzed as a two place verb with a nominative EXP and a stimulus PP.

(5) Two-place verb with accusative EXP

Das Lied begeistert Laura.
the.NOM song.NOM delights Laura.ACC
'The song delights Laura'

(6) Two-place verb with dative EXP

Laura gefällt das Lied.
Laura.DAT please the.NOM song.NOM
'Laura likes the song'

The examples show amongst other things that there exist different case patterns for the representation of the verb-argument relations involving stimuli and experiencers. Discussed as the so called *Linking Problem*, this is a crucial observation for theories of argument mapping, i.e., theories that aim to formulate rules for the deduction of structural features from conceptual-semantic properties of the predicates and their arguments.

The main focus of the thesis is on the class of verbs that realizes non-nominative experiencers, as in(5) and (6). This is because these Experiencer Object verbs (EO verbs[2]) are said to exhibit so-called *psych properties*, which means that they behave semantically and syntactically unusually, compared to other transitive verbs with patient or theme objects. This is what I call the *Experiencer Object Problem*.

In order to explain the peculiar behavior of EO verbs, researchers aim to elaborate their proper lexical-semantic and syntactic structure. A crucial observation here is that many EO verbs are ambiguous and may receive dynamic as well as stative interpretations. The example in (7) illustrates how the interpretations may vary with the animacy of the stimulus.

(7) Der Nachbar/Die Frage$_{\text{STIM}}$ ärgert Laura$_{\text{EXP}}$.
'The neighbor/the question annoys Laura'

While inanimate stimuli only allow for stative readings, animate stimuli license both dynamic and stative interpretations. Psych properties only occur with stative EO readings. The scope of research is therefore limited to this specific structure type. Previous analyses indicate that stative EO structures somehow always deviate from established

[2]The class of experiencer object verbs is often named according to the syntactic function of the experiencer argument (i.e. subject vs. object), which is marked with typical object cases such as accusative or dative. Although I will not discuss the subject/object status of the experiencer arguments here, I often make use of the more established term, 'experiencer object/subject', which names the alleged function instead of the case marking.

structure types. As for the involvement of causation, for example, stative EO structures are argued to be semantically more complex than pure states but less complex than prototypical causation. Examples for the respective classes are given in (8).

(8) a. The question annoyed Laura. EO VERB
b. Laura loves the question. STATIVE VERB
c. Someone killed Laura. CAUSATIVE VERB

Some researchers account for this intermediate status by assuming a special type of causation for EO verbs, i.e., internal stative causation, while others reject causation approaches altogether. One way or another, all analyses try to account for the fact that stative EO verbs have two arguments but none of them being a proper external argument. A further complicating issue is that EO verbs show variation when it comes to thematic and aspectual properties. This is in favor of alternative approaches to the special psych properties of EO verbs which relate them to levels other than aspect and argument structure.

The goal of the present chapter is to lay the foundation for the considerations about the special properties of psych verbs and EO verbs in the subsequent chapters. First of all, in Section 2.1, I introduce the basic concepts and the central assumptions that are associated with psych verbs, which also includes the challenges these predicates pose for grammar models, i.e., the Linking Problem and the Experiencer Object Problem, and how they were met by well-known approaches.

The sometimes difficult characterization of EO structures is indicative for their special status within the grammar system. Since semantic features of special EO structures will be a core issue of this thesis, I present previous developments of this field of research in Section 2.2. This mainly involves the characterization of the temporal course of psych events and the role of causation.

2.1. Psych verbs and psych verb challenges

The phenomenological discussion of psychological or mental predicates (cf. Postal 1968, Postal 1970 or Croft 1986) has been part of linguistic debates for decades. The terms already suggest that these predicates were labelled according to the conceptual-semantic features they have in common, i.e., they denote emotional or mental states, while one of their arguments always represents the individual that carries the relevant feeling. What is puzzling about these verbs is that the arguments, experiencer and stimulus, can be

encoded very differently. The best known classification of psych verbs is probably Belletti & Rizzi (1988)'s distinction of nominative, accusative and dative experiencers, as illustrated in (9).

(9) a. Gianni teme questo. — NOMINATIVE EXP
Gianni fears this

b. Questo preoccupa Gianni. — ACCUSATIVE EXP
this worries Gianni

c. A Gianni piace questo. — DATIVE EXP (DAT – NOM)
to Gianni pleases this

d. Questo piace a Gianni. — (NOM – DAT)
this pleases to Gianni
(Belletti & Rizzi 1988: 291)

There are three core classes of psych verbs and experiencer/stimulus encodings: in (9a), the experiencer functions as the subject of a psych verb and exhibits the default nominative case marking, the experiencer in (9b) is an accusative object, and as shown in (9c) the experiencer may also be obliquely marked. Languages that have the corresponding means often use morphological dative case marking, as in (10).

(10) German
Das gefällt der Laura.
that pleases the.DAT Laura.DAT
'This pleases Laura.'

The comparison between (9c) and (9d) above sets out that structures with oblique experiencers allow for both ways of argument ordering. As will be shown in Section 3.1, to a certain extent, this is also an option for special types of accusative experiencer structures.

In theories of argument linking, experiencers belong to the core inventory of thematic roles, next to agents, causers or themes. To use Landau's words, experiencers constitute the "category of sentient entities capable of mental life" (Landau 2010: 3). Compare the structures in (11) which test the awareness of such an individual.[3]

(11) a. # Der Test beunruhigt Laura, aber sie merkt es nicht.
'The test worries Laura, but she doesn't realize it.'

[3]Henceforth, judgments marked as # indicate an inadequate use based on the given conceptual or contextual information. The structures are still grammatically well-formed.

b. Der Lehrer beleidigt Laura, aber sie merkt es nicht.
'The teacher humiliates Laura, but she doesn't realize it.'

The contrast indicates that, while both verbs express some abstract mental content, it is possible for Laura not to realize that someone is insulting her, without denying the verbal content, whereas the concept of worry clearly requires awareness.[4] It will become more evident in the course of the thesis, that awareness is among the most crucial properties of EO structures.

For linguists, the conceptual meaning would certainly not be reason enough to give too much attention to psych verbs and experiencers. In fact, it is the grammatical challenges posed by EO verbs which push for an adjustment of established rules of grammar. Therefore, in the following two subsections, I briefly present details on the two main challenges of psych verbs and on selected approaches. Section 2.1.1 deals with the Linking Problem, and Section 2.1.2 addresses the Experiencer Object Problem, which will be the central issue for the narrative of the thesis. The discussion will be summarized in Section 2.1.3.

2.1.1. The Linking-Problem

Linking theories formalize how the conceptual meaning of arguments and their relations receive their form. One way to approach this is to assume that we can deduce the structure of linguistic expressions from the structured meaning of their components in a regular way. For that, we need a set of semantic primitives such as thematic roles, as well as rules that regulate the structural realization of the semantic roles. A semantic-syntax mapping that appears to be very regular is the distribution of agents and causers on the one hand and patients and themes on the other hand. For example, in canonical active sentences, agents occur as higher-structure arguments and are realized as subjects, whereas patients are always realized as lower-structure object arguments. Experiencers, however, appear to be allocated less clearly. For an illustration, compare the pairs in (12) to (15), which are taken from Dowty (1991: 579).

(12) a. x likes y — ES STRUCTURE
b. y pleases x — EO STRUCTURE

(13) a. x fears y

[4] Interestingly, there is a psych use of *beleidigen* ('humiliate'), which, then again, also requires the individual's awareness. See Section 4.1 for details on psych uses of non-psych verbs.

b. y frightens x

(14) a. x supposes (that) S
b. (it) seems (to) x (that) S

(15) a. x regards y (as) VP
b. y strikes x (as) VP

The contrasts demonstrate that the experiencer *x* is sometimes realized as a subject and the corresponding stimulus *y* is the lower argument (a.-variants), whereas in other cases, the stimulus is the subject and the experiencer is the lower-structure argument (b.-variants). The assignment of the primitive conceptual-semantic role, however, is arguably the same for experiencers, independent of their structural realization. The fact that the meaning of the pairs is very close supports this assumption. As a result, the question remains: How can we explain the different argument realization patterns of psych verbs? Unless we want to assume that the mapping of the arguments has to be learned for each and every instance of a psych verb, theories need to find an answer to this question.

Traditional solutions for the Linking Problem

Traditionally, there exist two different viewpoints when it comes to the solution of the Linking Problem: there are syntactic or primarily semantic solutions. The best-known syntactic analysis is Belletti & Rizzi (1988)'s unaccusativity analysis. It follows Postal (1968)'s transformational idea of a 'psych movement', i.e., "interchanging subject and object NP with certain 'psychological' verbs and adjectives" (Postal 1970: 43). As illustrated in Figure 2.1[5], Belletti & Rizzi (1988) assume that, in principle, the experiencer is always base-generated in a position higher than the stimulus. In their analysis EO verbs count as unaccusative verbs and lack the ability to assign structural object case. Consequently, the experiencer receives its case lexically and the stimulus moves to the subject position. This account solves the linking problem insofar as EO and ES verbs have the same underlying configuration of experiencer and stimulus, i.e., *(experiencer (stimulus))*. The major sources of criticism against Belletti & Rizzi (1988)'s approach are model-based as well as empirical issues. First, the stipulation of lexical case assignment blocking the movement of the experiencer is seen as problematic, and second, EO verbs do not behave consistently when it comes to typical unaccusative properties. For

[5] '**ec**' indicates a non-thematic position.

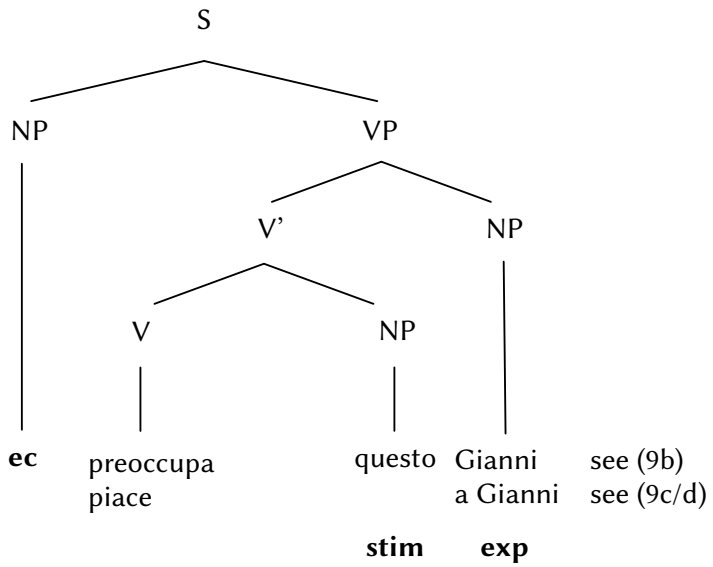


Figure 2.1.: Belletti & Rizzi (1988)'s derived subject analysis of EO verbs

example, the auxiliary selection with accusative EO verbs in some languages does not match the unaccusative pattern, i.e., accusative EO verbs select the language-specific correspondents of *have* instead of *be*. Note, however, that there is general agreement about dative EO verbs (e.g. *appeal to*) and their status as unaccusative verbs (cf. Belletti & Rizzi 1988, Grimshaw 1990, Pesetsky 1995, Arad 1998a, Reinhart 2001, Landau 2010).

Semantic approaches to the Linking Problem take an alternative perspective. They use conceptual-semantic features to explain the argument distribution of psych structures, which means that they identify semantic reasons for the experiencer and the stimulus to vary between subject and object functions. The approaches mainly differ as to whether aspectual information is integrated into the definition of thematic primitives or whether this aspect is treated differently. In the following, I briefly go through some ideas.

Similar to Belletti & Rizzi (1988)'s analyses, Grimshaw (1990) assumes that an ES verb such as *fear* and the semantically close EO verb *frighten* have the same underlying thematic structure, namely, *(experiencer (stimulus))*. This is in line with the thematic hierarchy she proposes in (16).

(16) Experiencer > Stimulus THEMATIC HIERARCHY

However, for Grimshaw (1990), not only thematic information belongs to the lexical-semantic meaning of a predicate. Rather, the aspectual information of a verb mediates

the structural realization of the arguments. She takes causation to be the relevant feature for the aspectual character of structures and argues that, in contrast to ES structures, the stimulus in EO structures is causally efficacious. The relative prominence of the relevant aspectual roles is illustrated in (17). They are only an excerpt of a much larger inventory.

(17) CAUSE > others ASPECTUAL HIERARCHY

Since the aspectual primitive CAUSE in (17) outranks all other potential aspectual features, causally prominent arguments are always realized as subjects. Bringing both the thematic and the aspectual hierarchy together, a mismatch emerges for experiencer objects, as they are thematically prominent but aspectually non-prominent. Eventually, the experiencer is realized structurally lower than the stimulus because the aspectual information is taken to be decisive for the syntactic realization of the arguments.

Following Dowty (1991), what makes psych verbs special compared to other verbs is that "(i) the predicate entails that the Experiencer has some perception of the Stimulus – thus the Experiencer is entailed to be sentient/perceiving, though the Stimulus is not – and (ii) the Stimulus causes some emotional reaction or cognitive judgment in the Experiencer." (p. 579). Consequently, both properties of experiencer and stimulus should equally license their realization as a prominent high-structure argument. In Dowty (1991)'s model, prototypical properties for high- and low-structure arguments, i.e., the Proto-Agent and the Proto-Patient, can be extracted from entailments of the verbs' semantics, i.e., the sets of properties consist of what all the verbs have in common when it comes to the involvement of their prototypical agent and patient. The lists in (18) and (19) give an overview of the respective properties. I also refer to Primus (2004) for a similar approach on case marking with psych verbs.

(18) Contributing properties for the Agent Proto-Role:
   a. Volitional involvement in the event or state
   b. Sentience (and/or perception)
   c. Causing an event or change of state in another participant
   d. Movement (relative to the position of another participant)
   e. Exists independently of the event named by the verb
   (Dowty 1991: 572)

(19) Contributing properties for the Patient Proto-Role:
   a. Undergoes change of state

b. Incremental theme
c. Causally affected by another participant
d. Stationary relative to movement of another participant
e. Does not exist independently of the event, or not at all
(ibid.)

Dowty (1991) argues that the varying argument realizations with psych verbs occur because of the tendency that, in ES structures, it is the experiencer that has more prototypical agent properties, whereas in EO structures it is the stimulus. That is, in EO structures, the stimulus is prominent due to its role as a causer, whereas the experiencer is less prominent due to a lack of causal relevance and volition. The experiencer, on the other hand, is affected and involved in a change of state.

Based on observations in Croft (1986), and in parallel to Grimshaw (1990)'s analysis, Dowty (1991) takes the differing aspectual potential of ES and EO structures as evidence for their difference in meaning and role distribution. Consider the examples (20) and (21), which use the progressive and pseudoclefts to show that EO structures have inchoative interpretations with the experiencer undergoing a mental change, as opposed to ES structures, in which the experiencer is merely in a mental or emotional state.

(20) EO structure
a. The birthday party is surprising/pleasing Mary_{EXP} (right now).
b. What happened to Mary was that the birthday party surprised/pleased her_{EXP}.
(Dowty 1991: 587)

(21) ES structure
a. * Mary_{EXP} is being surprised at/is liking the birthday party (right now).
b. * What happened to Mary was that she_{EXP} was surprised at/liked the birthday party.
(ibid.)

The potential inchoative interpretation of EO structures supports the idea that the stimulus in (20) is a causer but not in (21), which explains why it is realized as a subject in EO structures, but not in ES structures.

Additional support for the idea that ES and EO verbs come with different semantics comes from Pesetsky (1995). First, consider the two structures in (22), and note that they both involve the EO verb *worry*.

(22) a. John$_{\text{EXP}}$ worried about the television set$_{\text{STIM}}$. ES STRUCTURE

b. The television set$_{\text{STIM}}$ worried John$_{\text{EXP}}$. EO STRUCTURE
(Pesetsky 1995: 57)

Pesetsky (1995) argues that the two structures do not carry the same meaning, which is unexpected under the assumption that both encode the same arguments. To paraphrase the argument, the television set in (22b) might trigger John's worry, but the worry could actually be aimed at something associated with the television set, e.g., the price or the time of arrival.[6] Thus, the cause in (22b) does not tell the content of the cause, i.e., what *about* the TV is worrisome. In contrast, when expressed as a non-subject, as in (22a), the stimulus can only represent the content of thought. As a consequence of this difference in meaning, Pesetsky (1995) splits the stimulus role into two distinct roles: a causer (CAU) and a subject matter (SM). When realized as a subject, the stimulus is the causer of the experiencer's state, whereas, when realized as a non-subject it represents a subject matter that has no causal relation to the experiencer's state. On the relevant thematic hierarchy, the causer outranks the experiencer and the experiencer outranks the subject matter role, i.e., *Causer* > *Experiencer* > *Subject Matter*.

In sum, semantic approaches solve the Linking Problem in showing that ES and EO structures have different meanings. As a consequence, the arguments of ES and EO verbs are simply not expected to be projected in the same way. However, all these approaches face the problem that stimulus subjects in accusative EO structures, which have been argued to causally affect the experiencer, do not always seem to be true causers. See (23) for another contrast.

(23) a. The doctor's letter$_{\text{CAU}}$ worried Lucie$_{\text{EXP}}$.

b. Her health$_{\text{SM}}$ worried Lucie$_{\text{EXP}}$.
(Reinhart 2003: ex. 267)

Reinhart (2003)'s example shows that the subject of EO verbs such as *worry* can in fact be both the causer of emotions as well as the subject matter. The interpretation is controlled by contextual information together with the type of stimulus referent. That is, while a letter from the doctor in (23a) would rather trigger someone's worries (probably *about* her or his health), one's own health in (23b) rather constitutes the subject matter of thoughts and emotions.

[6] Pesetsky (1995) gives the following context for such as case: "The television set worried John. What would a completely blind man be doing with a fancy color television?" (p. 57).

Given the presented approaches for argument realization with psych verbs, Reinhart (2003)'s observation is highly relevant, as the existence of non-causal subject stimuli (e.g. a subject matter or content of thought) now raises the question of alternative explanations. For example, it is possible to see the case markings in EO structures as a remnant of previous stages of the verbs' lexical development (e.g. Reinhart 2003, Klein & Kutscher 2005), which would lead us back to lexically pre-determined case-markings as has been proposed by Belletti & Rizzi (1988), Reinhart (2003), or Landau (2010) in unaccusative EO analyses. In this respect, it is also important to note that the occurrence of thematically or aspectually non-prominent subjects is not restricted to psych verbs. In Chapter 5, I discuss so-called locative verbs of the *obstruct*-class, which have non-prominent subjects in a very similar manner.

Finally, I would like to point to the option which was already indicated by the contrast in (22) above, namely, that the relation between stimuli and experiencers in EO structures may also be expressed by structures that demote the stimulus and promote the experiencer. Such options are illustrated in (24) for German.

(24) a. Der Test$_{\text{STIM}}$ interessiert Laura$_{\text{EXP}}$. EO ACTIVE
the test interests Laura
'The test is interesting for Laura.'

b. Laura$_{\text{EXP}}$ ist interessiert an dem Test$_{\text{STIM}}$. EO PASSIVE
'Laura is interested in the test.'

c. Laura$_{\text{EXP}}$ interessiert sich für den Test$_{\text{STIM}}$. PSEUDOREFLEXIVE
'Laura is interested in the test.'

As argued in Wegener (1999), such alternation options for EO verbs are used to present the verbal content from different perspectives, just as with regular argument alternations such as passive formation. This kind of structural variability is licensed by discourse-pragmatic features such as the information-structural status of the arguments. From a language usage perspective, corpus studies by Pijpops & Speelman (2015) for Dutch and Engelberg (2014) for German and Romanian indicate that several factors correlate with the use of specific alternants, such as stimulus animacy or abstractness, morphological form of the arguments, language or register (spoken/written). In general, EO verbs are heterogeneous when it comes to the availability of certain argument alternations (e.g. passives or pseudoreflexives) and stimulus referent types (e.g. NP/CP arguments) (Engelberg 2014). As for the Linking Problem, I refer the reader to the study in Levin & Grafmiller (2012), who investigate similar factors for the contrast between *fear* and *frighten*, showing that the ES verbs' object stimuli in comparison to the subject

stimuli of EO verbs are abstract objects. As will be shown in Chapter 4, however, the underlying stimulus referent of special EO structures is also often abstract in a way.

In short, the Linking Problem has received some attention and a number of suitable solutions. Most approaches consider ES and EO structures to be different at the semantic level, namely, that EO verbs but not ES verbs involve causation. Therefore, in EO structures, the causally efficacious stimulus has a position which is in accordance with its higher prominence status. However, these approaches reach their limits with the existence of causally less relevant and semantically non-prominent subject matter stimuli. The varying characterization of the stimulus argument in EO structures will be of relevance throughout the thesis.

2.1.2. The Experiencer Object (EO) Problem

It is not only the distribution of the experiencer role itself that poses a challenge for psych verb research. Additionally, experiencers always appear to be in opposition to other arguments which have the same syntactic status, i.e., which occupy the same positions and/or receive the same markings. According to that, experiencer subjects are in opposition to canonical external arguments such as agents or causers and experiencer objects deviate from patients or themes when it comes to their status as prototypical objects. I will only discuss effects of the latter opposition: experiencers vs. patients and themes.

What the Experiencer Object Problem comes down to is that, in principle, experiencer objects behave less like typical objects, and in some respects even subject-like. One famous result of this peculiar status is the existence of so-called *psych properties*, which are apparent grammatical rule violations which EO verbs exhibit in contrast to non-EO verbs. Such a psych property is exemplified in (25).

(25) a. Who did you tease the sister of? NON-EXP

b. ?? Who did your behavior bother the sister of? EXP
(Landau 2010: 29)[7]

The example contrasts the EO verb *bother* in (25b) with the non-EO verb *tease* in (25a). The argument *the sister of x* is an experiencer object in the former and a patient object in the latter structure. It shows that in contrast to the patient the experiencer phrase is an island to extraction from the object (see Belletti & Rizzi 1988 for the same effect in Italian).

[7]Landau (2010) originally took the example from Johnson (1992: ex. 24)

A further example for a psych property comes from Russian. Compare the structures in (26) with respect to the case marking potential of the object.

(26) a. Ja ne našel tzvety/ tzvetov. NON-EXP
I not found flowers.ACC/ flowers.GEN
'I didn't find (the) flowers.'
(Landau 2010: 25)[8]

b. Šum ne ogorčil ni odnu devočku/ *odnoj devočki. EXP
noise.NOM not upset no one.ACC girl.ACC/ *one.GEN girl.GEN
'The noise didn't upset a single girl.'
(Landau 2010: 26)[9]

A general rule in Russian says that the accusative case of regular direct objects gets shifted to genitive case under negation. This is exemplified in (26a). However, the contrast indicates that this is not possible for experiencer objects, which means that they keep their regular object marking, as shown in (26b).[10]

The examples so far could create the impression that EO verbs predominantly show restrictive behavior but they also have a licensing nature, as will be shown in Chapter 3 with two German psych properties: exceptional linearization and exceptional binding. In general, psych properties can be found in a vast number of languages and include central linguistic phenomena, e.g., islandhood, control, binding, linearization, among many others. For a cross-linguistic and cross-phenomenal overview over psych effects, I refer the reader to Landau (2010).

To conclude, EO verbs differ from verbs that do not deal with emotional or mental concepts, more specifically, they are in direct opposition to other two place verbs such as non-experiential action verbs or causative verbs. The basic question that arises with the existence of psych properties is, why would two-place structures about emotional and mental eventualities be different from two-place structures about non-experiential events or actions. One question associated with this is whether the properties are indeed psych-specific or whether they are linked to aspects that can be found with other structures too. The answer to that requires a broader empirical investigation of psych properties.

[8]The example is originally from Pereltsvaig (1997: ex. 1).

[9]The example is originally from Legendre & Akimova (1993: ex. 40).

[10]Polish is another language in which sentential negation affects object case marking. However, Bondaruk et al. (2017) show that the case gets shifted with accusative experiencers too, which they take as a strong argument against their unaccusativity. This underlines the language-specific dimension of psych properties.

The existence and distribution of psych properties raise at least two questions: first, how can they be derived, and second, do they all have the same source? In the following I discuss a few approaches on the Experiencer Object Problem, which all try to explain the differing status of experiential and non-experiential objects in the grammatical system.

How to solve the Experiencer Object Problem

The solutions to the Experiencer Object Problem refer to the same kind of non-canonical thematic or syntactic status of the arguments that has already been addressed by approaches to the Linking Problem, i.e., the stimulus being a comparably untypical subject and the experiencer an untypical object. For example, the blocking of the accusative-to-genitive shift of Russian experiencer objects is often taken as evidence for the assumption that, in contrast to patient or theme objects, experiencers are inherently case-marked arguments or oblique PP-like arguments, which generally resist such a case shift (Belletti & Rizzi 1988, Landau 2010). Landau (2010) argues that extraction out of experiencers is restricted for the same reason (recall example 25).

The approaches that seek to explain psych properties often see the stimulus or the experiencer in a position that deviates from its surface position. Either the experiencer's hierarchical relation to the stimulus has been different pre-derivationally or it deviates from the covert position in later stages of the derivation. Recall, for example, Belletti & Rizzi (1988)'s derived subject analysis, which assumes that the experiencer is base-generated higher than the stimulus, but the derivation of the structure underlies restrictions that lead to a realization of the experiencer as a surface object. This originally higher position can explain the licensing of properties that require a certain hierarchical relation between the experiencer and the stimulus, e.g., binding and exceptional control. Consider the contrast in (27) for an example.

(27) a. * Each other$_i$'s friends hit [John and Judy]$_i$. NON-EXP

b. Each other$_i$'s stories annoyed [Bill and Tom]$_i$. EXP
(Fujita 1993: 382)

The contrast indicates that the EO structure in (27b) but not the non-experiential structure in (27a) licenses binding regardless of the fact that there is no proper c-command relation between antecedent and anaphor, i.e., with EO structures binding is possible although the subject anaphor precedes the antecedent. Observations like these gave rise to the idea that experiencer objects, but not patient objects have originally

been in a position from which they can properly bind the anaphor. In Section 3.2, I present more details on the so called *Backward Binding*, including a critical discussion of the data in the literature as well the presentation of experimental evidence.

Similar to exceptional binding, a higher position of the experiencer would explain obligatory control in extraposed subject clauses. Compare the structures in (28).

(28) a. Mary_i thought that it helped John_j [$\text{PRO}_{i/j}$ to speak his_j/her_i mind].
NON-EXP

b. Mary_i thought that it pleased John_j [$\text{PRO}_{*i/j}$ to speak his_j/*her_i mind].
EXP
(Landau 2013: 39)

In both cases it appears that the clausal subject has been extraposed, as indicated by the expletive *it* which occupies the original position. Nevertheless, the control options differ. For the EO structure in (28b) extraposed clauses impose obligatory control, whereas in the non-EO structure the subject of the infinitival may also depend on the matrix clause subject *Mary*. This asymmetry could be explained under the assumption that the infinitive clause in (28b) is in fact generated below the experiencer from which its subject is controlled obligatorily. For more details I refer to Landau (2013) and references therein.

In sum, phenomena such as Backward Binding and obligatory control with EO verbs support the idea that the relation between experiencer and stimulus is not reflected in the surface structure. However, these exceptional properties have also inspired analyses that assume a covert movement of the experiencer to a higher structural position. As for the binding and control data in (27) and (28) above, for example, this means that the experiencer enters the relevant structural binding configuration (c-commanding the stimulus anaphor) at a late stage of the derivation and not pre-derivationally.

Experiencer raising theories come in different shapes. Landau (2010) assumes that experiencers are LF-subjects that covertly move to the leftmost position (see also Campbell & Martin 1989). Others assume that the experiencer moves to the left periphery for discourse-pragmatic reasons (Zribi-Hertz 1989, Fujita 1993, Sato & Kishida 2009, among others). For these approaches, the derivation of psych properties depends on the theory. If an antecedent is a *subject of consciousness* (i.e. an experiencer, cf. Zribi-Hertz 1989, Bouchard 1995) related to a stimulus, illicitly bound anaphors are either seen as exempt from Binding Theory or the experiencer covertly binds it from a higher position carrying discourse-pragmatic features. Sato & Kishida (2009), for example, assume that EO

structures, but not structures built from "normal" verbs host a point-of-view (POV) projection in their left periphery. Illustrations of both Landau (2010)'s and Sato & Kishida (2009)'s perspectives on experiencer raising are given in Figures (2.2) and (2.3).[11]

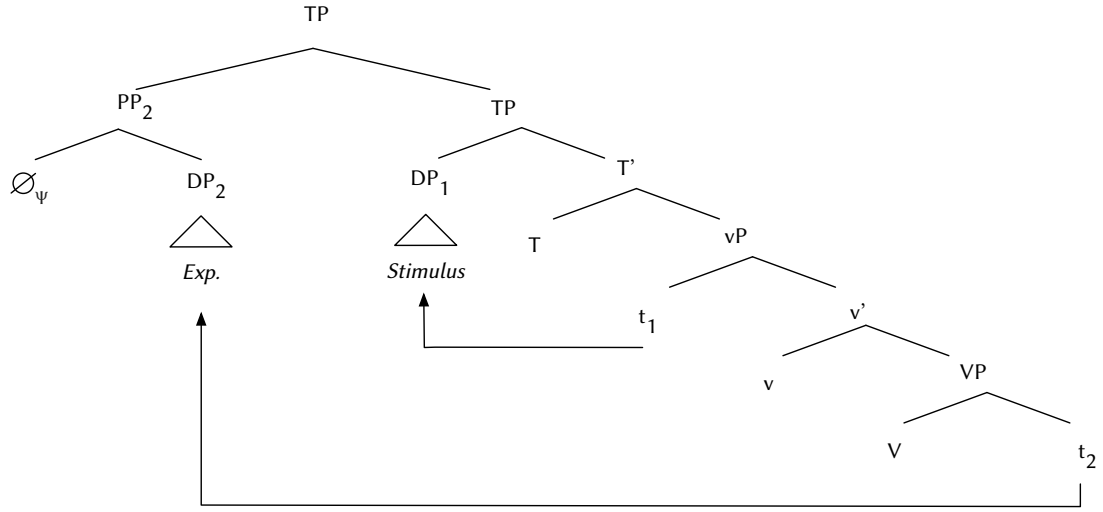


Figure 2.2.: Landau (2010)'s LF subject analysis of EO verbs

Thus, experiencer raising theories differ as to whether they ascribe the special status of EO verbs to discourse-pragmatic features or not. Support for the relevance of such features comes from the observation that the truth of psych meaning appears to always depend on a sentient individual. As a consequence, the experiencer is always aware of the stimulus or its relation to it. Recall the example for the validity of the experiential awareness condition in (11) above. What points to the relevance of discourse is that experiencers are always part of the common ground, that they are predominantly definite and tend to be topical (cf. Bickel 2004). I will address these issues in the respective parts of the thesis. However, the question remains whether one wants to include pragmatic notions in projections of grammar, for example in form of a more complex left periphery. See, for example, Speas & Tenny (2003), and Gärtner & Steinbach (2014) for arguments against such an idea.

One consequence of experiencer raising analyses is that they allow for the view that the mapping of stimulus and experiencer is regular, i.e., the same way as with non-experiential structures with the nominative argument as the original subject and not as a derived subject. In fact, independent of the structural relevance of discourse-pragmatic features, experiencer raising approaches differ with respect to the semantic-

[11] In Landau (2010)'s analysis $\varnothing_{\Psi}$ stands for the null preposition that introduces the experiencer.

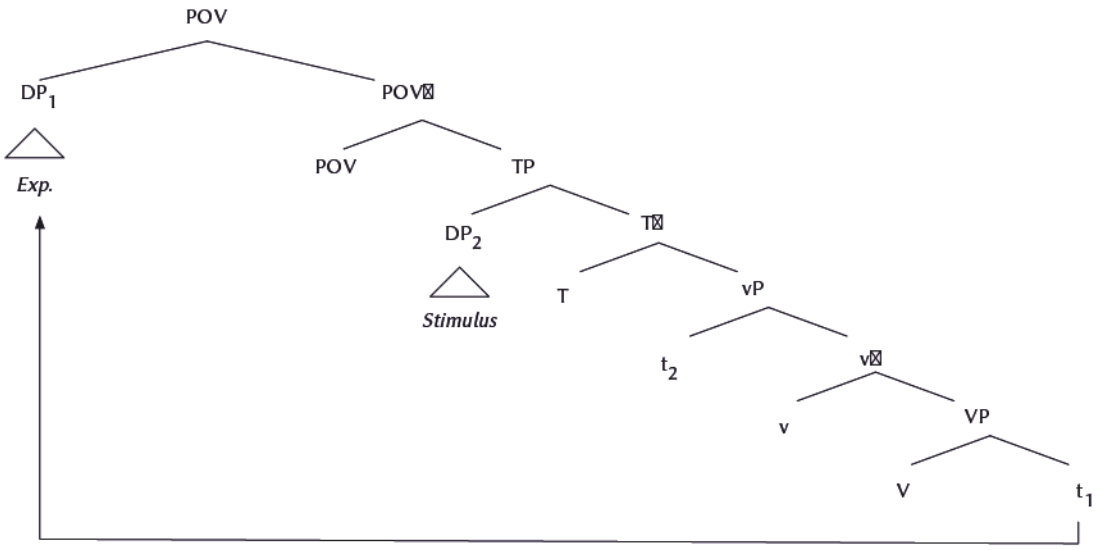


Figure 2.3.: Sato & Kishida (2009)'s POV analysis of EO structures

syntax mapping: either the mappings of EO and non-EO verbs are basically the same (Bouchard 1995, Arad 1998a), or the experiencer is originally generated higher than the stimulus (unaccusative/derived subject analysis). As a matter of fact, several observations challenge the view that EO verbs have a unique lexical-semantic status which underlies specific mapping rules. For example, many verbs are polysemous, as they allow for experiential and non-experiential interpretations. Compare the different readings of the French verb *frapper* ('hit'/'strike') in (29).

(29) a. Marie frappe Paul (avec un marteau).
'Marie strikes Paul (with a hammer).'

b. Marie frappe Paul (par son intelligence).
'Marie strikes Paul (with her intelligence).'
(Bouchard 1995: 269)

It appears that the same verb can be a non-experiential action verb as well as an EO verb. Therefore, if we assume that the verbs themselves are the triggers of the special structure building and licensing of psych properties we would have to assume multiple lexical entries, which is a rather disfavored approach, as, in general, a high degree of ambiguity in the lexicon works against a high degree of learnability, even more so given the high productivity of EO structures (Bouchard 1995, Martin 2006, among others).

Another objection against an EO-verb-specific lexical mapping is that EO statements appear in different forms. This is illustrated in (30).

(30) a. Cet article a enragé Paul.
'That article angered Paul.'

b. Jean fait peur à Marie.
Jean makes scare to Marie
'Jean scares Marie.'

c. Cela a mis Marie en colère.
that has put Marie in anger
'That angered Marie.'

d. Paul a poussé Marie à la haine/au désespoir.
'Paul pushed Marie to hatred/to despair.'
(Bouchard 1995: 266-268)

The examples show that EO structures may be built from simple as well as complex predicates. As shown in (31), this type of structural variation is not limited to EO verbs.

(31) a. Er ruiniert sie. NON-EXP, SIMPLE
'He ruins her.'

b. Er treibt sie in den Ruin. NON-EXP, COMPLEX
he drives her in the ruin
'He plunges her into ruin.'

c. Er treibt sie_{EXP} in den Wahnsinn. EXP, COMPLEX
he drives her in the insanity
'He drives her crazy.'

The parallel meaning of (31a) and (31b) shows that similar variation emerges in the non-experiential domain too. The potential structural proximity to EO structures is furthermore illustrated with (31c), where the same type of complex predicate is used for expressing psych semantics.

The examples (29) to (31) suggest in effect that there are reasons to prefer EO analyses that locate psych-specific properties "on top" of thematic or lexical-aspectual structures, as they allow for structural variation within EO structures and for the existence of verbs parallel lexical-semantic structures but without the relevant psych properties. Theories that assume that EO verbs do not have a special status at any point would have to predict that the observed psych properties also occur with non-experiential verbs with the same structural properties. Alternatively, as is argued in Bouchard (1995), effects that appear to be psych-specific can also be traced back to properties at a non-structural pragmatic level; see also Arad (1998a) or Żychliński (2013).

In sum, the choice of the solution for the Experiencer Object Problem depends on several presuppositions, i.e., whether psych properties are real and whether they have the same source, whether we assume that EO verbs are structurally special, where one would locate psych-specific features (lexicon, overt/covert syntax, aspectual structure, discourse-pragmatic structure), among others. It also became apparent that solutions to the Experiencer Object Problem need to be able to capture the frequency and productivity of psych uses of "normal" verbs and the structural variability of EO statements in general.

2.1.3. Section summary

To conclude the section, the goal of the present chapter is to provide background information about psych verbs in general and EO verbs in particular. In the present subsection, I gave a brief review of the relevant concepts as well as the challenges that psych verbs pose when it comes to linguistic research and modeling, i.e., the varying argument mapping with psych verbs and the derivation of psych properties with EO verbs, which are a subclass of psych predicates.

The discussion of the Linking Problem shed light on the lack of clarity when it comes to the question whether ES and EO verbs indeed build distinguishable thematic and/or aspectual structures that could justify the varying argument mappings. An important aspect in this context was that the stimulus' status as a prominent causer in EO structures has raised some doubts. In the view of semantic approaches to the Linking Problem, this would withdraw the justification for the realization of EO stimuli as subjects. The exact nature of the stimulus remains an open issue, which will be addressed in more detail in Chapters 4 and 5.

Formulated as the Experiencer Object Problem, many researchers attribute specific properties to EO verbs in comparison with other two-place verbs with non-experiential object arguments, i.e., patients or themes. The debate about possible solutions indicates that there is uncertainty when it comes to the validity, scope and sources of psych properties. I will provide evidence for psych properties in German in Chapter 3. Then, if psych properties are real, the question remains at what level and to what extent EO verbs truly differ from non-EO verbs.

Psych verbs and psych verb challenges

i. Psych verbs select experiencer arguments and denote mental and emotional eventualities. Experiencers are cognitively participating individuals. The two basic classes of psych verbs are experiencer subject verbs (ES, *love*-type) and experiencer object verbs (EO, *frighten*/*appeal-to*-type).

ii. Approaches to the Linking Problem assume that ES and EO verbs have either different semantic or different syntactic properties to explain why experiencers receive different morphological markings or occupy different structural positions.

iii. The Experiencer Object Problem relates to special cross-linguistic and cross-phenomenal psych properties the validation and scope of which remains an open issue.

iv. The present work focuses on the licensing of psych properties and the characteristics of transitive EO verbs.

2.2. The meaning and structure of EO verbs

For some time past, the aspectual and structural analysis of EO verbs alone has grown into a distinct field of research (Verhoeven 2010, Marín & McNally 2011, Rozwadowska 2012, Alexiadou & Iordachioaia 2014, among others). Since it plays a crucial role for the considerations of this thesis, I present some of the ideas on the argument and event structure and aspectual classification of the verb class. It will become apparent that the different approaches are sometimes inconsistent regarding the lexical-semantic characterization of EO verbs, which ultimately corresponds to their general heterogeneous nature.

Approaching the semantic and syntactic nature of special EO structures is a necessary step for identifying their proper placement in the linguistic system. The previous subsection already presented some of the relevant features discussed the literature. For example, that the arguments of psych verbs, i.e., experiencer and stimulus, deviate from "more typical" agent/causer subjects and patient/theme objects. Another observation was that EO verbs in contrast to purely stative ES verbs involve causation and a change of state within the experiencer. The status of the stimulus, however, does not always

support such a view, as in some cases, it should be analyzed as a subject matter rather than a typical causer of an emotion. The corresponding example is repeated in (32).

(32) a. The doctor's letter$_{\text{CAU}}$ worried Lucie$_{\text{EXP}}$.
b. Her health$_{\text{SM}}$ worried Lucie$_{\text{EXP}}$.
(Reinhart 2003: ex. 267)

The stimulus in (32b) seems to be content of the experiencer's thought, whereas in (32a) it is rather understood as triggering the worries, which are about something else. The interpretation depends on contextual information, respectively.

All in all, arguments of EO verbs seem to be related in a special way, the nature of which, probably due to the nature of the expressed concepts, is difficult to determine. One linguistically manifested reason for such difficulties may be that we can sometimes use EO verbs to describe different types of eventualities. For example, the structures in (33) all use the EO verb *frighten*.

(33) a. Her neighbor frightened Laura because he wanted to provoke her.
b. Her neighbor frightened Laura when he came around the corner.
c. Her neighbor frightens Laura a little bit because she doesn't hear him anymore.

Although the structures contain the same EO verb, the role of the arguments and the type of relation between them is different. In Section 2.2.1, I discuss the interpretational options for accusative EO structures in more detail as well as the relevance these semantic distinctions have for the psych verb research.

What the existing thematic and aspectual EO-verb approaches have in common is that they analyze the verbs' semantics as intermediate between canonical stative and dynamic eventualities. Depending on the theoretical background, this is either reflected in the assigned theta roles, the inclusion of relevant decompositional predicates or the characterization of the time course and the event boundaries of the encoded eventuality. To underline this intermediate status, I provide some of the characterizations of EO structures from across the literature in (34).

(34) EO structures are…
a. Inchoative experience structures (e.g. Vinas-de-Puig 2009)
b. Inchoative statives (e.g. Marín & McNally 2011, Fábregas & Marín 2015, Willim 2016)

c. initial-boundary events (e.g. Rozwadowska 2003)

d. Stative causatives (e.g. Pylkkänen 2000)

e. Complex ergatives (no external argument, but *v*-layer) (e.g. Bennis 2004)

f. Structures with external internal arguments (e.g. Arad 1998a)

In Section 2.2.2, I discuss some assumptions about EO structures and introduce the aspects which led to the unclear status of EO verbs. In principle, the vague status of EO verbs is mirrored by the different proposals for their semantic and syntactic structure

2.2.1. Lexical-semantic ambiguities with EO verbs

An important observation for the determination of distinctive EO features is that some EO verbs exhibit lexical-aspectual ambiguities (Grimshaw 1990, Arad 1998a, among others), which means that one EO verb can develop different structure types. Take, (35) for example.

(35) a. Nina frightened Laura deliberately. AGENTIVE

b. The noise frightened Laura. EVENTIVE

c. That she could be president frightened Laura. MENTAL STATE

Using Arad (1998a)'s terminology, the EO structures in (35) differ with respect to the presence of an agent and the encoding of a change of state within the object individual. Agentive EO structures contain a volitional agent but do not involve a change of state (cf. 35a), non-agentive eventive EO structures only encode a change of state (cf. 35b), and finally, stative EO structures lack both features (cf. 35c).[12] Note that, although most dative EO verbs are stative only, some may have agentive interpretations too. This illustrated in (36) to (37) for German.

(36) a. Nina hat Laura absichtlich wehgetan. AGENTIVE
'Nina hurt Laura with on purpose.'

b. Ninas Entscheidung tat Laura weh. MENTAL STATE
'Nina's decision hurt Laura.'

(37) * Nina gefiel Laura absichtlich. MENTAL STATE ONLY
'Nina appealed to Laura on purpose.'

[12]Note that, sometimes, authors do not follow a three-fold distinction of EO verb interpretations, but do consider at least two different readings by using either an agentive/non-agentive distinction or an eventive/stative distinction, both targeting different aspects of the verbs' meaning and structure.

For a more detailed discussion of the different readings and their distinctive properties see Chapter 4, which, among other features, discusses the characterizations by also considering the referential properties of the arguments.

In addition to the variation of the interpretations by itself, the EO verbs also vary with respect to the potential to exhibit the respective structures. For example, in English, the verbs *concern* and *depress* are stative-only, *frighten* and *embarrass* can be both stative as well as eventive, and *scare* and *startle* rather prefer the eventive use (cf. Pesetsky 1995). That EO verbs vary with respect to the structure types they may build is reflected in their varying potential for certain argument structure operations such as nominalizations or passives. For example, in order to derive the differences between the mental state and the eventive EO structures, some authors argue that the stimuli of mental state structures are not real external arguments (e.g. Grimshaw 1990, Arad 1998a, among others). One consequence is that EO verbs that only allow for a stative reading (*depress*, *worry*) prohibit *-ing* nominalizations, which require the presence of an external argument (Grimshaw 1990). The relevant examples are given in (38).

(38) a. the entertaining of the children

b. * the depressing of the patients/*the worrying of the public
(Grimshaw 1990: 120-121)

Another property related to the stative/eventive distinction is the lack of verbal passives for stative verbs. Since this is a much-debated issue, I refer the reader to Grimshaw (1990), Belletti & Rizzi (1988), Pesetsky (1995), Tenny (1998) and Bondaruk et al. (2017) for a variety of examples and different views on the validity of this generalization. For now, recall from the discussion of the Linking Problem in Section 2.1.1 that EO verbs have been analyzed as unaccusatives. Their stimulus argument is a derived subject which comes from a VP-internal position to receive case externally. Due to this, they are not expected to license passives with a typical *by*-phrase to represent the stimulus subject (Pesetsky 1995). The comparison of (39) and (40), however, shows that accusative EO verbs allow for such a passive, which was taken as counter evidence for the assumption that accusative EO verbs are genuine unaccusative verbs (Pesetsky 1995).

(39) Dative EO

a. The play didn't appeal to Mary.

b. * Mary wasn't appealed to by the play.
(Pesetsky 1995: 60)

(40) Accusative EO

a. The song didn't please Mary.

b. Laura wasn't pleased by the play.
(ibid.)

What weakens this argument is that (40b) shows a non-canonical stative passive instead of a verbal passive (cf. Landau 2010). Generally, the status of stative (or *adjectival* passives) is a matter of ongoing debate, e.g., whether it is a phenomenon of the lexicon or syntax and, consequently, what properties of the base predicate they actually reflect (Embick 2004, Horvath & Siloni 2008, Bruening 2014, Alexiadou et al. 2014; see also Section 5.1.1).

What makes it crucial to differentiate and characterize the different EO verb structures properly is the observation that psych properties, as presented in the previous section, only occur with the mental state interpretation of EO verbs (Arad 1998a, Landau 2010, among others). Recall, for example, the genitive shift which occurs with Russian accusative objects under negation and which is absent in EO structures. As soon as one uses agentive EO structures, the object's case marking again becomes regularly shifted to genitive, in parallel to canonical objects. This is illustrated in (41).

(41) a. Stative

Šum ne ogorčil ni odnu devočku/*odnoj devočki.
noise.NOM not upset no one girl.ACC one girl.GEN
'The noise didn't upset a single girl.'

b. Non-stative

Maša naročno ne ogorčila ni odnu devočku/ odnoj devočki.
Maša.NOM deliberately not upset no one girl.ACC one girl.GEN
'Maša deliberately didn't upset a single girl.'

Landau (2010: 25-26)

The same holds for the island restrictions and the Backward Binding data presented in Section 2.1.2 above, i.e., as soon as the EO structure is used non-statively, island restrictions disappear and Backward Binding is prohibited, just as is expected for canonical transitive verbs (Reinhart 2003, Landau 2010). Thus, the range and validity of psych properties shows that stative EO structures constitute the core research subject, the analysis of which attracts the most attention. In order to approach their nature, this structure type needs to be isolated from the ones that show more or less regular behavior.

Although lexical-semantic ambiguities are a special feature of EO verbs, such alternations are by far not restricted to this verb class. There are several non-experiential verbs which show the same type of variation. An example is given in (42) with the verb *obstruct* (based on Kratzer 2000).

(42) Tissue obstructed the blood vessel.
   a. Tissue just obstructed the blood vessel.
   b. Because of a congenital malformation, tissue obstructed the blood vessel.

The possible interpretations for the structure in (42) differ with respect to dynamicity. Either the tissue is understood as a causer which happens to obstruct the vessel in a certain moment (42a), or it is in a constant relation obstructing it without the implication of dynamicity (42b), which is a stative relation instead of an eventive. In Chapter 5, I compare EO verbs and *obstruct*-type verbs in more detail in order to identify the crucial psych features.

In sum, it has been observed that EO verbs exhibit lexical semantic ambiguities of which only the stative use appears to exhibit psych properties. This underlines that it is not the EO verbs per se but a specific structure type that should receive particular attention (cf. Bouchard 1995, Fábregas & Marín 2015). It has also been suggested that EO verbs in general show variation when it comes to the availability of the possible interpretations and associated argument structure operations, indicating that they also vary with respect to their lexical-semantic structure. Moreover, there is evidence that the lexical-semantic features that are attributed to the mental state use of EO verbs are not necessarily limited to EO verbs. In fact, the exact nature of special EO structures is a much-debated issue. Both, the variation and parallel features in the non-psych domain complicate the search for psych-specific properties at this level. In the following, I discuss some of the proposals for the semantic and syntactic structure of stative accusative EO structures.

2.2.2. Time course and causativity in EO structures

As claimed in Nelson (2000) for Finnish, "[t]he unusual properties of stative causative psych verbs are derived by altering the argument structure of the base verb to yield a stative, unaccusative, but morphologically causative verb" (Nelson 2000: 176). In general, most approaches assume that the semantics and the syntax of special EO verbs lie between the structures of purely stative transitive (e.g. *see*, *hate*, *resemble*) and dynamic agentive/causative transitive verbs (e.g. *hug*, *ask*, *break*). Approaches dealing with the

semantics of EO verbs have characterized the crucial reading within thematic, event-structural or aspectual frameworks. Although I will not declare one of the frameworks to be determining regarding the special EO features, I will nevertheless introduce some concepts and notions that have been used to approach the nature of the mental state structure in more detail. Many of the presented concepts will also be relevant for the considerations in the remainder of the thesis.

Previously in this section we have seen that the class of EO structures appears to be rather heterogeneous, e.g., there are simple as well as complex predicates that form EO structures (cf. French *enrager* 'anger' vs. *mettre en colère* 'put in anger'). Moreover, it has been recognized that EO verbs show variability with respect to their aspectual structure. Consider, for example, the variation when it comes to duration in (43).

(43) a. ?? Odd noises were continually depressing Sue.

b. Odd noises were continually scaring Sue.
(Pesetsky 1995: 30-31)

The examples show that the progressive is easily available for an EO verb like *scare*, but not for *depress*. Pesetsky (1995) proposes that such contrasts mirror the difference between EO verbs denoting sudden changes (e.g. *alarm*, *shock*, *surprise*) and those that encode growing emotion (e.g. *depress*, *bore*, *worry*). This also appears to be reflected in the assignment of EO verbs to the traditional aspectual verb classes as proposed in Vendler (1957), i.e., states, activities, achievements and accomplishments.[13] As Klein & Kutscher (2005) demonstrate for German in (44), EO verbs form different groups when tested with aspectual adverbials. For the evaluation of the structures, note that the adverbial *for NP* indicates that an eventuality is durative (vs. non-durative), and *within NP* reveals that an eventuality is complete (vs. non-telic/non-complete). Achievement verbs are typically durative and non-telic, while Accomplishments are telic without expressing duration. Others

(44) a. * Das Fest beeindruckte/überraschte/erboste ihn eine Stunde lang.
'The party impressed/surprised/annoyed him for an hour.'

b. * Das Fest beeindruckte/überraschte/erboste ihn innerhalb einer Stunde.
'The party impressed/surprised/annoyed him within an hour.'

[13] Typical non-EO examples for the aspectual verb classes are *know* and *resemble* for states, *walk* and *run* for activities, *die* and *arrive* for achievements and *build* and *destroy* for accomplishments.

c. Das Fest ängstigte/ärgerte/baute auf/reizte ihn eine Stunde lang.
'The party frightened/made angry/encouraged/tempted him for an hour.'

d. Das Fest baute ihn innerhalb einer Stunde auf.
'The party encouraged him within an hour.'

e. * Das Fest ängstigte/ärgerte/reizte ihn innerhalb einer Stunde.
'The party frightened/made angry/tempted him within an hour.'
(Klein & Kutscher 2005: 7-8)

Klein & Kutscher (2005) show that some EO verbs are not compatible with any of the adverbials, which means that they rather belong to the class of achievement verbs (*beeindrucken*, *überraschen*, *erbosen*; (44a) and (44b)). Other verbs (*ängstigen*, *ärgern*, *reizen*) behave like activities as they allow for modification with durative but not with telic adverbials[14], and still others can be analyzed as accomplishments because they appear to be both durative and telic (*aufbauen*). On the other hand Landau (2010) classes the entire group of EO verbs with accomplishments, whereas Van Voorst (1992) proposes a general analysis as achievements. As a result, the examples above and the related disagreements regarding the aspectual classification of EO verbs confirm that there is no aspectual uniformity across EO structures. As a consequence, although some of the properties that have been addressed in connection with EO verbs may reflect their aspectual-semantic features, they cannot be responsible for psych properties that concern the class of EO verbs as a whole. Considering this, we would have to hypothesize that durative *depress* as well as non-durative *scare* share special psych properties which probably go beyond the aspectual properties.

A property that has been jointly assigned to all EO structures, i.e., irrespective of the simple/complex predicate or aspectual class variation, is that they involve causative semantics. Since this points to causation as a promising comprehensive EO property, I now discuss this assumption in more detail.

Several authors have argued that the mapping of the stimulus and the experiencer argument in EO structures can be explained by the fact that the stimulus is causally related to the experiencer, which led to a classification as lexical causative verbs similar to other lexical causatives such as *break* or *open* (Dowty 1991, Croft 1993, Iwata 1995, Pesetsky 1995, among others). As for the lexical structure, such an assumption has the consequence that EO verbs have a more complex lexical decompositional structure than purely stative ES (*love*-type) verbs. In addition to the experiential state predicate, the

[14]This is as reported in Klein & Kutscher (2005), but is also compatible with a characterization as states.

EO verbs contain a CAUSE predicate. I borrow Rothmayr (2009)'s lexical representations for ES and stative EO verbs to illustrate the contrast between simple ES and complex EO verbs in (45).

(45) a. λy λx λs (EXP-STATE(x,y))(s) SIMPLE ES VERBS

b. λy λx λs CAUSE(x, EXP-STATE(y))(s) COMPLEX EO VERBS

However, although there appears to be general agreement upon the view that EO structures are more complex than ES structures, it does not necessarily mean that the semantic structure of stative EO verbs corresponds to canonical cases of causativity. Probably, the strongest support for approaches in favor of causative analysis of EO verbs comes from languages that build (parts of) their EO structures by the causativization of their ES verbs, e.g., Japanese or Finnish. For example, in Japanese the ES structure in (46a) combined with the causative morpheme *-(s)ase* creates the EO structure in (46b).[15]

(46) Japanese EO verb derivation

a. Taro-ga purezento-o/-ni yorokon-da.
Taro-NOM present-ACC/-*NI* get-pleased-PST
'Taro got pleased at the present.'

b. Purezento-ga Taro-o yorokob-ase-ta
present-NOM Taro-ACC get-pleased-CAUS-PST
'The present pleased Taro.'
(Shimoyoshi 2015: 102-103)

The idea that EO verbs are rather not numbered among regular causative verbs receives support by the fact that, in contrast to *break*-type verbs, they do not exhibit the causative alternation. The causative alternation is a characteristic property of transitive verbs involving a change of state, as they can build an intransitive version which captures this meaning component. Compare (47) and (48).

(47) *break*-type causatives

a. John broke the glass. TRANSITIVE

b. The glass broke. INTRANSITIVE

(48) EO verbs

a. John frightened the children. TRANSITIVE

[15] Shimoyoshi (2015) does not translate *-NI*, as it can stand for several things such as indirect objects, locations, directions, passive agents, among others, which cannot always be easily determined (p. 37).

b. * The children frightened. INTRANSITIVE

There are two aspects that, in turn, challenge this observation and weaken the informative value of the causative alternation. First, other verbs exist which do not alternate but still count as change of state verbs. Examples are given in (49).

(49) a. The terrorist assassinated/murdered the president.

b. * The president assassinated/murdered.
(Schäfer 2009a: 14)

Second, in some languages, EO verbs indeed show (de-)causativization morphology. See, for example, Biały (2005) for Polish, Alexiadou & Iordachioaia (2014) for Greek and Romanian and Jurth (2016) for Hungarian. It appears that the availability of the causative alternation varies across languages but also within the respective EO classes. In German, for example, a subset of EO verbs allows for anticausative reflexives forms, as illustrated in (50).

(50) a. Die Frage ärgert/ wundert mich. TRANSITIVE
the question angers wonders REFL

b. Ich ärgere/ wundere mich über die Frage. INTRANSITIVE
I anger wonder REFL about the question

There is an interesting debate about causative structures across languages and what the specific features for licensing the causative alternation are. For more details see Levin & Rappaport (1995), Pylkkänen (1999), Alexiadou et al. (2006), Schäfer (2009a), Horvath & Siloni (2011), Alexiadou & Iordachioaia (2014), Alexiadou (2016), Haspelmath (2016), and references therein. For now, I take the situation to reflect that the availability of the alternation for EO verbs does not correlate with the availability of psych properties, similar to the aspectual variation discussed before.

One way to comply with the fact that EO verbs involve causative semantics but in an untypical way is to assume that EO structures express a special type of causation which diverges from prototypical cases. As already indicated by (34) above, several approaches assign special types of stativity or causation to EO verbs that lie somewhere in between regular statives and causatives. I present the established options in the following paragraphs: external vs. internal causation, changes vs. onsets of states and eventive vs. stative causation.

External vs. internal causation

Levin & Rappaport (1995) argue that non-altering change of state verbs, i.e., the verbs that lack an intransitive alternant, can be subsumed under internal causation verbs. With such verbs, the causer leading to the coming about of the change is inherent to the eventuality or entity. Internal causation is typically expressed by monadic verbs of emission. In contrast, external causation involves a causer external to the entity undergoing a change of state. Examples for verbs of internal and external causation are given in (51). Furthermore, the different relation types are illustrated in Figure 2.4

(51) a. bake, blacken, break, cook, cool — EXTERNAL CAUSATION

b. laugh, play, speak, burble, flash, flicker, smell — INTERNAL CAUSATION

(Levin 1993, Levin & Rappaport 1995)

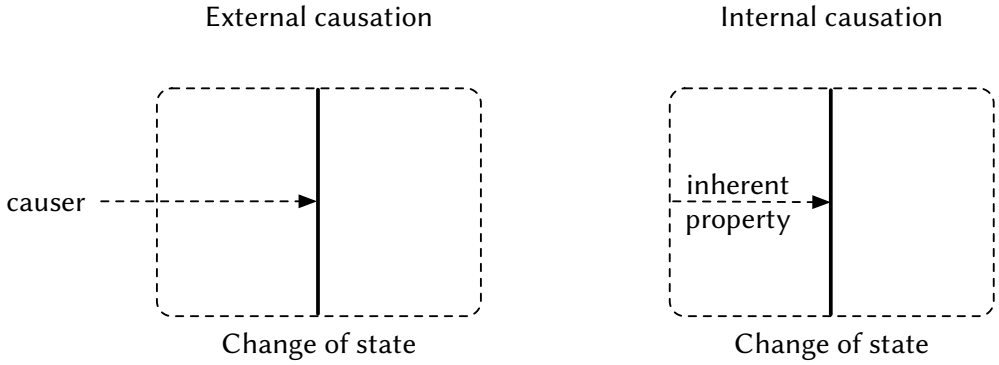


Figure 2.4.: Visualization of external and internal causation

The dashed box is the domain in which the causation takes place, which is usually an object or individual itself. The solid line represents the point of change from one state to another. With external causation a cause takes effect from outside the domain (e.g. wind breaking the vase), whereas with internal causation a property from inside the domain triggers a change (e.g. physical properties leading to blush). As for the general validity of such a distinction, consider McKoon & Macfarland (2000) and Wright (2002) for evidence from corpus and acceptability studies, also supporting the view that external change-of-state verbs denote two sub-events, whereas internal change-of-state verbs are mono-eventive.

Given the meaning of stative EO structures and the fact that many of the verbs do not regularly exhibit the causative alternation, a similar approach could be proposed,

namely, that causation in stative EO structures is an instance of internal causation. One possibility to imagine an internal causer for EO structures is to assume that it is the experiencer's perception of the stimulus which leads to a certain emotion (cf. Arad 1998a Pylkkänen 2000) or the internal representation of a subject matter (i.e. object of thought or consciousness). See Rozwadowska (2012) for an approach along this line. Experiential internal causation is illustrated in Figure 2.5.

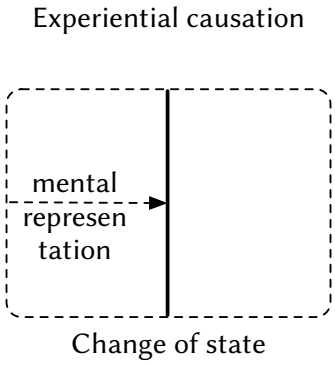


Figure 2.5.: Experiential causation as internal causation

External causes, on the other hand, are not necessarily perceived by or represented within the experiencer, which could be reflected in the contrast between the eventive and the stative use of EO verbs, repeated in (52).

(52) a. The noise frightened Laura. EVENTIVE

b. That she could be president frightened Laura. STATIVE

Whereas a state of affairs or imagination is represented experiencer-internally, this is not necessarily the case for natural-force causers (e.g. noises, thunder storms, gusts, landslides, etc.). Thus, the internal/external-causation distinction appears to capture the intuitions about the relation between stimulus and experiencer in stative EO structures very well. The question is whether such a distinction is represented in the linguistic structure. Rappaport Hovav & Levin (1998)'s propose different templates for verbs expressing internally caused changes of states and verbs expressing externally triggered changes of states. Both are illustrated in (53).

(53) a. ((α) CAUSE (BECOME x <*STATE*>) EXTERNAL CAUSATION

b. (BECOME (x <*STATE*>)) INTERNAL CAUSATION

What speaks against a classification of stative EO verbs as verbs of internal causation, and which is also what Rappaport Hovav & Levin (1998) would predict from their basic meaning components, is that this type of causation is typically expressed by monadic verbs. The BECOME operator in (53) introduces the eventive layer by selecting a state but it does not select an external argument, which is selected by a CAUSE operator instead.

What special stative EO verbs have in common with established verbs of internal causation, however, is the lack of an external argument. This can be shown, for example, by the fact that most EO verbs do not, or only marginally, license verbal passivization, which confirms that there is no external argument that can be targeted by this operation (cf. Grimshaw 1990). On the other hand, causatives that involve an external argument in their transitive use license verbal passives. Compare the structures in (54).

(54) a. ?? Das Publikum ist frustriert worden. EXPERIENTIAL CAUSATION
'The audience was being frustrated.'

b. Die Vase ist zerbrochen worden. EXTERNAL CAUSATION
'The vase was being broken.'

In fact, it is often argued that EO verbs have two internal arguments (Grimshaw 1990, Arad 1998a, Bennis 2004, among others; see also Section 2.1) or are "'intransitive' at the level of event structure." (Rozwadowska 2012: 570).

The discussion so far shows that EO verbs express a type of causation that is different from the type of causation expressed by canonical transitive change-of-state verbs (*break*-type), which usually involve two sub-events (i.e. a causing eventuality and a result state eventuality). It has been argued that EO verbs do not regularly license the causative alternation and generally lack properties which indicate the presence of an external argument. Nevertheless, their semantics and the derivation of EO verbs in languages such as Finnish or Japanese indicates that even stative EO structures still have causative meaning, supporting the view that EO verbs are more complex than pure states (Nelson 2000, Pylkkänen 2000). Moreover, unlike traditional cases of internal causation (*blush/blossom*-type), experiential internal causation involves two participants. Thus, complexity-wise, stative EO verbs appear to project less than two causally related events but more than just the coming about of an experiencer's state.

In the following, I briefly introduce two concepts from the literature which try to incorporate the idea of a special type of EO causation, i.e., first, *stative inchoatives*, an aspecual class among onset-less state verbs and change-of-state verbs, and second, *stative causation*, a causative analysis of verbs that regularly exists alongside eventive

causation.

Onsets of states

Fábregas & Marín (2015) argue that ES verbs are purely stative individual level predicates that denote single states without boundaries. EO verbs, on the other hand, are stative stage level predicates which, in addition, denote the onset of a state. Therefore, they call these types of states *inchoative states*. A simple illustration of the difference between ES and EO verbs is given in (55).

(55) a. ES state: – – – – – – – –

b. EO inchoative state: [– – – – – – –
(Fábregas & Marín 2015: ex.61)

Thus, in the domain of linguistic causation there are two types of causative predicates: change-of-state verbs and onset-of-state predicates, which denote left boundaries of a state. See Fábregas & Marín (2015) for more details including the relevant aspectual tests for Spanish EO verbs.

Similar to the approaches mentioned previously, Fábregas & Marín (2015)'s argue that stative ES and EO structures are build the same way, but EO structures have an additional projection hosting the causer of the onset of the state. Their analysis is illustrated in Figures 2.6 and 2.7.

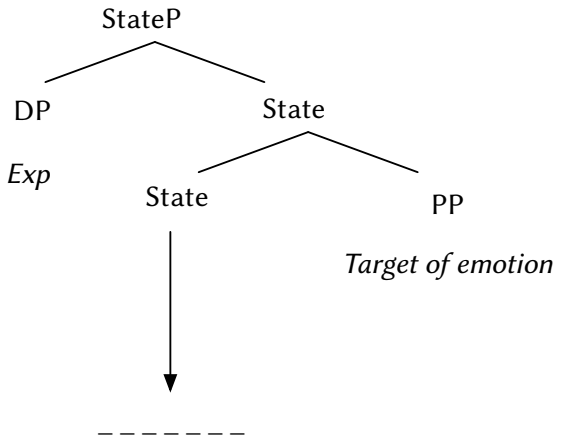


Figure 2.6.: The structure of ES verbs (Fábregas & Marín 2015)

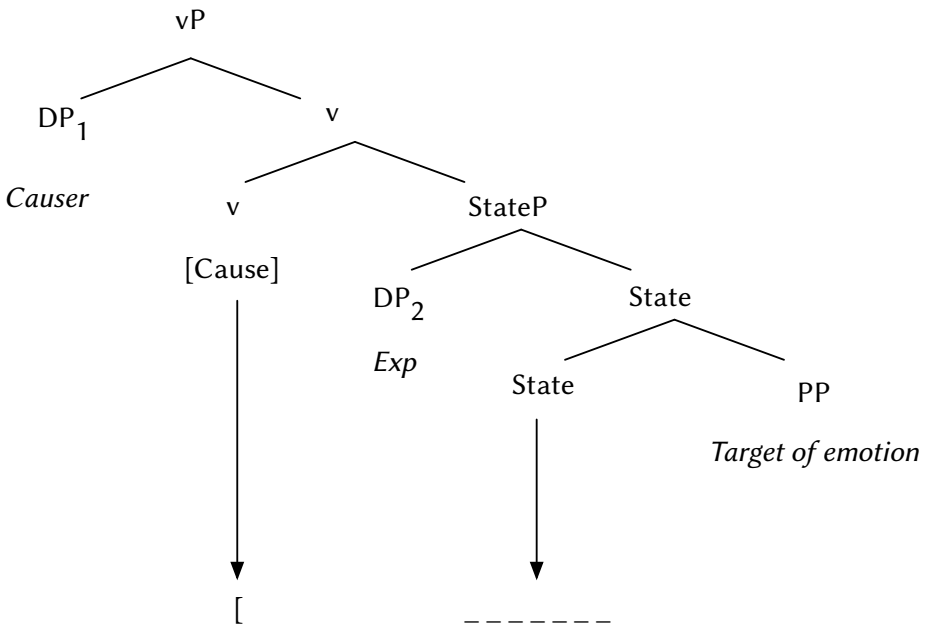


Figure 2.7.: The structure of stative EO verbs (Fábregas & Marín 2015)

As a consequence, EO structures do not only involve a stimulus argument, which is the object or target of thought, but also a causer of the experiential state. The possibility of a structure like (56) is taken as evidence for such a view.

(56) El artículo del periódico preocupó a Juan por su hijo.
the article of-the newspaper worried ACC Juan for his son
'The newspaper article made Juan worry about his son.'
(Fábregas & Marín 2015: ex. 71)

The example shows that both arguments target and causer may co-exist in one structure. Fábregas & Marín (2015) underline that "[i]t is not necessary that there is any semantic connection between the causer and the third participant".[16] However, there are cross-linguistic differences when it comes to the co-occurrence of both causers and subject matters in one EO structure. See, for example, Polish in (57).

(57) Historia interesowała Marka (?*tematem wojen).
history.NOM interested Mark.ACC topic.INSTR of-wars

[16]Fábregas & Marín (2015) further elaborate that "the newspaper article does not need to talk about Juan's son. It might be talking about a possible invasion of Thailand, but this possibility triggers in Juan an emotion which is directed towards his son, to the extent that he will have to live in a world full of wars"

'History interested Mark (with the topic of wars)'
(Bondaruk et al. 2017: 137)

According to Biały (2005) such structures are only possible if the target-PP contains an anaphor which is co-referential with the surface subject, i.e., the PP can only capture inherent properties of the stimulus entity, as in (58), for example.

(58) Nagrodai cieszy Marię swojąi wartością.
prize.NOM delights Mary.ACC its value.INSTR
'The prize delights Mary with its value.'
(Bondaruk et al. 2017: 137)

In such cases, we would deal with syntactically split stimuli instead of two distinct arguments. In fact, Fábregas & Marín (2015)'s example in (56) challenge the so-called *T/SM restriction* (*T*arget/*S*ubject *M*atter), which says that these two roles cannot occur at the same time in such environments (Pesetsky 1995). It seems that Spanish and also Hebrew (Doron To appear) are more flexible with respect to the T/SM restriction. These are interesting contrasts which need to be investigated in more detail. For now, the argument made above for a structure such as in 2.6 only holds for a subset of languages.

Irrespective of the availability of two different stimuli, what Fábregas & Marín (2015) describe appears to be exactly the type of EO structure Reinhart (2003) wants to differentiate from those stative EO structures in which the stimulus subject is a subject matter and not a causer. Recall the examples in (59).

(59) a. The doctor's letter worried Lucie$_{EXP}$. CAUSER STIMULUS
b. Her health worried Lucie$_{EXP}$. SUBJECT MATTER STIMULUS
(Reinhart 2003: ex.267)

She argues that many accusative EO structures of the type 'Stim – Exp' may have different thematic specifications, i.e., 'Stim$_{CAU}$ – Exp' and 'Stim$_{SM}$ – Exp'. The latter case is usually analyzed as unaccusative structure lacking an external argument. Since EO verbs often allow for both causer and subject matter stimuli, the interpretation depends on the context. As Reinhart (2003) puts it, "[w]hether it is interpreted as the cause or not, depends on whether other causes are mentioned" (p. 289). Reinhart (2003) furthermore argues that special psych properties such as Backward Binding rather occur with subject matter stimuli.

The presented views show that it seems to be difficult to determine whether causation is universally involved in the mental state reading of EO structures or not. Although

there are a number of approaches assuming that stative EO structures, in contrast to other stative transitives, involve onsets of states (e.g. Marín & McNally 2011), this particular type of causation is sometimes discussed within the scope of eventive EO uses rather than stative ones (recall Section 2.2.1); for example in Polish (Rozwadowska 2003, Rozwadowska 2012, Willim 2016). Since it is not clear whether the relevant stative EO structure has been isolated properly for characterization, I leave this aspect of the EO verbs' meaning aside for the most part of the thesis.

Eventive vs. stative causation

Another concept that has been proposed to capture the special role of causativity in stative EO structures is stative causation. While eventive causation describes two related and subsequent eventualities, i.e., the trigger eventuality ends when the result eventuality starts, eventualities involved in stative causation proceed simultaneously. Here, the result state ends once the trigger state does not hold anymore. The difference between the two types of causation is illustrated with the Figures 2.8 and 2.9

Figure 2.8.: Eventive causation (Biały 2005)

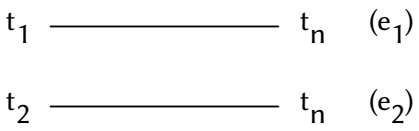


Figure 2.9.: Stative causation (Biały 2005)

Thus, stative EO structures are seen as denoting two co-existing, temporally dependent and causally related states (cf. Pylkkänen 2000, Biały 2005, Rothmayr 2009). This corresponds to most of the proposals about the structure of stative EO verbs standing in contrast with purely stative transitive verbs. For Arad (1998a), the trigger in the stative causative relation that is expressed by EO verbs is the experiencer's perception of the stimulus, whereas 'perception' does not necessarily mean that it exists outside the experiencer but is somehow mentally represented.

Evidence for the general relevance of the concept of stative causation comes from the *obstruct*-type verbs that have been mentioned before. Like EO verbs they alternate between eventive and stative readings, and, in fact, their stative variant has also been analyzed as an instance of stative causation. The contrasts in (60), (61) and (62) exemplify the stative/eventive alternation for some verbs.

(60) a. Laura verstopft den Abfluss mit einem Tuch.
'Laura obstructs the drain with a cloth.'

b. Das Tuch verstopft den Abfluss.
'The cloth obstructs the drain.'

(61) a. Laura blockiert die Einfahrt mit dem Auto.
'Laura blocks the driveway with the car.'

b. Das Auto blockiert die Einfahrt.
'The car blocks the driveway.'

(62) a. Laura bedeckt den Tisch mit einem Laken.
'Laura covers the table with a sheet.'

b. Das Laken bedeckt den Tisch.
'The sheet covers the table.'

A possible analysis for stative causative structures is that they involve a CAUSE operator that relates two states causally, but lack BECOME which is responsible for eventive readings (cf. Rothmayr 2009). This corresponds to the representation of EO verbs above which is repeated in (63).

(63) λy λx λs CAUSE(x, EXP-STATE(y))(s)

There exist various analyses of stative *obstruct*-type verbs involving causative predicates. The implementations depend on the respective views on the structure of verbal phrases and the status of their arguments. For more details on the different approaches, I refer the reader to Kratzer (2000), Arad (2002) and García-Pardo (2015), who applies Ramchand (2008)'s framework to causative states. Furthermore, the accounts differ as to whether the stimulus and the experiencer are inverted in their base positions (unaccusative/derived-subject analyses; Belletti & Rizzi 1988, Kratzer 1996, Landau 2010). See Bouchard (1995) and Arad (1998a) for arguments against inversion accounts.[17]

[17] Biały (2005), Żychliński (2013) and Bondaruk et al. (2017) make similar arguments regarding EO verbs in Polish.

In contrast to the causative analyses for the examples above, Rappaport Hovav (2017) argues that the fact that we can add external arguments (a.-variants) to the stative structures (b.-variants) shows that there is no causation involved. As a general rule, she states that "there are no causes without a change" and what is stative about the structures is actually the result state, i.e., the driveway being blocked, the table being covered, and so forth, and not the relation between co-existing causing and result states (Rappaport Hovav 2017: 8). Therefore, if we assume a parallelism between *obstruct*-type and stative EO structures, these considerations again cast doubts on the analysis of stative EO structures as causative states. Nevertheless, the assumption that stative causation exists among eventive causation is advocated in various approaches (Kratzer 2000, Rothmayr 2009, Maienborn & Herdtfelder 2015, among others).

As a last point, I refer to Chapter 5, in which I discuss the similarities between experiential and non-experiential instances of stative causation in more detail. It will be shown that there are good reasons for a parallel analysis for EO and *obstruct*-type verbs, whereby the role of causation remains unclear for both classes.

2.2.3. Section summary

To sum up, the section reinforced the idea that in order to investigate psych verbs and their psych properties one needs to concentrate on a specific configuration of dative and accusative EO verbs, i.e., the structure that underlies their stative interpretation. Many researchers agree that the special properties of EO verbs are associated with their semantic structure, either from a lexical-semantic or pragmatic perspective. Therefore, the specification of the relevant EO features is crucial for the derivation of psych properties. However, the closer inspection of the different levels of EO semantics revealed that the assumptions about the structure of the stative EO verbs are rather vague. It has become evident that the unclear status of stative EO verbs is mirrored by the different proposals for their semantic and syntactic structure. Dative EO verbs (*appeal to*) are uniformly analyzed as non-causative unaccusatives. The apparent involvement of causation makes it difficult to maintain the idea for accusative EO structures.

There exist basically two types of analyses for stative accusative EO verbs, i.e., the causative and the non-causative analyses. Thus, the structures either denote a causal relation between a stimulus-related state and an experiencer-related state or they denote a simple non-causal relation between a subject matter stimulus and an experiential state. Furthermore, the existing analyses differ when it comes to the status of the experiencer (regular vs. oblique/PP argument), the initial mapping of the arguments (surface order

vs. inverted) or the nature of the verbal projections (differing views on the existence and relevance of a *v*-layer). Both perspectives, however, are compatible with the idea that special EO structures denote experiencer-internal eventualities. Taken together, all existing approaches deal in a slightly different way with the fact that stative accusative EO verbs are transitives carrying causative meaning without having a prototypical external argument. In contrast, the non-exceptional agentive and eventive EO structures are mostly analyzed in parallel to non-experiential structures with a proper external subject argument.

Whatever the optimal analysis may be, both the causative and non-causative view allow for the possibility that the proposed structure is not EO-verb-specific, i.e., that there are non-experiential structures which have properties similar to stative EO verbs. One candidate that has been brought in is the *obstruct*-type class which has been argued to have the same involvement of causation.

As a general note, the evaluation of the EO verbs' properties and semantics is clearly complicated by various sources of variation, e.g., aspectual variation (differing compatibility with aspectual modifiers) or structural variation (simple *madden* vs. complex forms *drive crazy* or lack vs. use of morphological causative marking).

The meaning and structure of EO verbs

i. Eventive EO structures can be distinguished from stative interpretations, the latter receiving the most attention as they exhibit psych properties.

ii. There is no consistent structural or semantic classification of EO verbs and neither characterization is necessarily specific to this class. What is psych-specific is that the relation between stimulus and experiencer "occurs" experiencer-internally.

iii. Many approaches assume that causative semantics is relevant for stative EO structures. Distinctions such as onsets vs. changes of states or and/or stative vs. eventive causation have been made in order to differentiate them from canonical cases of causation. The actual relevance of causativity in stative EO structures remains an open issue.

2.3. Summary and conclusion of Chapter 2

The goal of this chapter was to present the relevant aspects and viewpoints from within the psych verb research. In Section 2.1, I addressed the challenges posed by psych verbs and by the class of EO verbs in particular. First of all, the Linking Problem addresses the question why the relation between stimuli and experiencer arguments may be mapped differently, leading to the existence of ES and EO verbs. The relevant approaches either propose that EO verbs are unaccusatives or that they contain rather prominent cause-stimuli which trigger the experiential state. Both accounts can explain very well the existence of nominative stimuli. Which one is to be preferred, however, remains unsolved. On the one hand, there are indications of non-causer stimuli in EO structures which is gives advantage to unaccusative analyses. On the other hand, based on their argument structural properties, accusative experiencer verbs are not unequivocally unaccusative, as is argued for dative experiencer verbs.

The Experiencer Object Problem deals with the question why EO verbs seem to behave differently from other transitive verbs when it comes to central linguistic phenomena, e.g., they show unexpected island restrictions and license exceptional binding or control. To explain this, existing analyses assume that the configuration between experiencer and stimulus has changed during the course of derivation. Unaccusativity and experiencer raising approaches oppose each other in this respect. In general, further clarification is needed when it comes to the behavior of EO verbs and their properties.

In the second part of the chapter, in Section 2.2, I presented a number of proposals for the lexical-semantic structure of stative EO verbs. The motivation behind this line of psych verb research is that EO verbs stand out due to their special properties which manifest potentially at the lexical-aspectual level. The fact that only the stative reading of lexically ambiguous EO verbs exhibit psych properties shows that it is a certain structure type that has to be examined more closely. In the course of the discussion, it was pointed out that EO verbs are quite heterogeneous with regard to a number of semantic features. For example, the EO verbs differ with respect to the potential dynamicity or presence of a volitional agent and they show varying availability of argument structure operations such as passivization or nominalizations. Moreover, there is no agreement when it comes to the aspectual classification of special EO structures as well as the relevance of causation. On the whole, the debate shows that the considerations of all the features that might be involved in the psych phenomena as well as the various sources of variation create a very complex picture. All things considered, the variation indicates

that it is not a specific lexical-semantic structure type that sets apart the special class of EO verbs, especially when there are "non-exceptional" non-psych verbs that appear to have parallel structures.

Since many researchers argue that the mental state reading of EO verbs involves causation, I addressed some concepts that have been dealt with in this respect. It applies to all approaches that EO structures can be located semantically somewhere between purely stative and canonical causative structures. Still, causative and non-causative views on EO verbs co-exist. Stative EO structures are seen as relating subject matter subjects with experiencers or as a relation between two states where the state associated with the stimulus causes the mental state of the experiencer without the implication of dynamicity.

Several open issues emerge from the considerations of this chapter which deserve more attention. For example, the empirical basis regarding the validity and scope of psych properties is rather weak. Moreover, the research on stative EO structures and non-experiential structures that share relevant features still involves unanswered questions: first, where do the varying characterizations of the stimulus argument of stative EO structures come from, and second, what isolates the special stative EO structures from other predicates. All the open issues will be addressed in the following chapters.

The subsequent working steps of the thesis are the following: in Chapter 3, I discuss and test two psych properties of German EO verbs. In Chapter 4, I look at the stative EO structures in more detail, also with respect to the referential properties of the stimulus. In Chapter 5, I compare EO verbs with non-EO verbs that exhibit similar properties. Chapter 6 summarizes and concludes the findings.

3. Testing psych properties in German

The peculiarity of psych verbs received much attention and the fact that it also receives a large amount of cross-linguistic support strongly indicates that there is something special about the psych domain. Nevertheless, there are various reasons to be skeptical about the special status of EO verbs. First and foremost, psych properties might not be real or be influenced by the varying and interfering features addressed in the previous chapter. This touches on a general empirical problem: many of the properties that have been identified for psych verbs are based on insufficient, blurred or conflicting data. Very often singular examples were carried further through the literature. Thus, one key aspect of the empirical problem is that we have a weak basis for making strong assumptions about the basic structure of a rather large verb class or even about the functionalities of linguistic interface systems.

The present chapter deals with the question whether the predicted behavior of EO structures withstands the methods of psycholinguistic research, i.e., the multiplication of test structures created under carefully controlled conditions with a full factorial design. Therefore, in the following sections, I present experimental studies testing two psych properties in German. The phenomena under investigation are flexible argument ordering and exceptional Backward Binding. The first study in Section 3.1 presents two alternative forced choice experiments and is intended to verify the long-standing assumption that, in German (and other free word order languages), experiencers tend to occur in a sentence-initial position. Consider the following examples.[1]

(1) a. dass deine Geschichten meinen Vater überhaupt nicht interessieren
that your stories.NOM my father.ACC at-all not interest

[1]Note that the studies on exceptional linearization as a psych effect in German are embedded in a larger typological study on argument linearization, also considering Hungarian, Greek and Korean. For more details see Temme & Verhoeven (2016).

b. dass meinen Vater deine Geschichten überhaupt nicht interessieren
that my father.ACC your stories.NOM at-all not interest
(den Besten 1982: 74)

(2) a. dass deine Musik meinem Bruder nicht gefällt
that your music.NOM my brother.DAT not pleases

b. dass meinem Bruder deine Musik nicht gefällt
that my brother.DAT your music.NOM not pleases
(den Besten 1982: 62)

German allows for relatively flexible argument ordering. Nevertheless, the orders that deviate from the unmarked one need to be licensed contextually. Therefore, we included contextual licensing as a factor, showing that EO verbs allow for object-initial structures even without such an input.

In Section 3.2, I present a study on the special binding properties of EO verbs in German. Backward Binding as a psych property has been introduced already in the previous chapter. Recall example (3).

(3) a. * Each other$_i$'s friends hit [John and Judy]$_i$ NON-EXP

b. Each other$_i$'s stories annoyed [Bill and Tom]$_i$. EXP
Fujita (1993: 382)

It shows that, in contrast to (3a), which contains a two-place action verb, the EO structure in (3b) allows the reciprocal anaphor to be coreferential with the object. Based on examples like (3), it is argued that experiencers license such backward dependencies but not patient objects. However, EO structures themselves and binding configurations as well are sensitive to several confounding factors which may influence the relevant judgments. For example, the presence of picture-NP anaphors and genericity create binding illusion environments, in which proper binding conditions do not hold. They will also be discussed in this context. Section 3.3 summarizes and evaluates the findings from the studies.

3.1. Study I: Exceptional linearization with EO verbs

It has been observed for a number of languages that structures with non-nominative experiencers, i.e., built by dative and accusative EO verbs, may exhibit linearizations in which the experiencer appears early on in the clause without a contextual trigger. The

particular role of experiencers in linearization was first reported on the basis of intuition data. See, for example, Lenerz (1977) for German, Belletti & Rizzi (1988) for Italian or Anagnostopoulou (1999) for Greek. Furthermore, production studies both with naturalistic and with experimental data, confirm a linearization asymmetry that depends on the theta-role of the object, as shown, for example, in Ferreira (1994) for English, Ichihashi-Nakayama (1994) for Nepali or Verhoeven (2014) for German. Linearization preferences are also reflected in speech comprehension (Scheepers 1997; Scheepers et al. 2000; Haupt et al. 2008 for German).

As discussed in Chapter 2.1, syntax-based accounts on the peculiar behavior of EO verbs assume that the linearization properties of experiencers reflect their properties in a hierarchical syntactic structure. Different theta-roles are hosted by different structural projections, as schematically presented in (4).

(4) a. [vP agent [VP patient V]] AG – PAT

b. [VP experiencer [V´ stimulus V]] STIM – EXP

Following current assumptions, the patient is an internal argument of the VP, while the agent is hosted by a higher verbal projection, presumably the vP in (4a). The constituent structure of stative EO verbs in (4b) involves a non-agentive stimulus as verbal complement and an experiencer in a higher position. The relation between experiencer and stimulus changes after the movement of the stimulus to a position where it can receive nominative case marking. Nevertheless, the basic configuration enables the experiencer to show behavior untypical for objects. Discourse-based accounts, on the other hand, assume that arguments which refer to individuals experiencing mental states are very likely to be topics, which may trigger the early occurrence in an utterance. See Bickel (2004) and Haspelmath (2001) for an account of more general functional properties. This view is empirically supported by evidence from languages with topic positions. Experiencers in these languages are frequently realized in the topic position, which is arguably not a subject position (see É. Kiss 2005 and Rákosi 2006 for Hungarian).

Another observation when it comes to exceptional linearization with EO structures is that accusative and dative EO structures seem to differ with respect to the strength of the psych effect. For instance, acceptability studies in German have shown that both orders, 'experiencer-before-stimulus' and 'stimulus-before-experiencer', are equally acceptable for accusative EO verbs while dative verbs show a preference for the 'experiencer-before-stimulus' order (Haupt et al. 2008: 84, confirming earlier observations by

Lenerz 1977, Hoberg 1981 and Primus 2004; see also corpus findings in Bader & Häussler 2010b: 727). The question is where the impact of case comes from, e.g., whether accusative and dative experiencers correspond to different types of clause structures or whether there are particular reasons that block accusative argument fronting.

The following subsections examine the basic dimensions of the linearization properties of German EO verbs with a parallel experimental design for accusative and dative EO verbs. The focus will be on the following three aspects: *(i)* a comparison of experiencer arguments with other constituents that are syntactically similar in order to identify the particular properties of EO verbs, *(ii)* a comparison of the role of accusative and dative experiencers, and *(iii)* a comparison of the effects of experiencer objects on linearization with the effects of a specific licensing context. First, Section 3.1.1 provides some more background information on linearization and psych verbs in German. Subsequently, the experimental setup is described in Section 3.1.2 and the results are presented and discussed in Sections 3.1.3 and 3.1.4.

3.1.1. ExperiencerFirst as a psych effect

German is a basic OV language and allows for scrambling objects over the subjects (see Fanselow 2003, Müller 2004, Frey 2004, Frey 2005; see also corpus findings in Bader & Häussler 2010b). Scrambling can be triggered by the interaction of several factors, including definiteness, animacy, focus, among others (Müller 2004). German main declarative clauses have an obligatory rule for fronting finite verbs to a higher clausal position (Thiersch 1978; den Besten 1989). The prefield of verb-second clauses is obligatorily filled, which induces formal movement of the first eligible element in the middlefield (see Frey 2006). Based on intuitive judgments, there is evidence for flexible argument ordering as a psych property with accusative and dative EO verbs in German. Recall that this exceptional behavior only appears with non-eventive EO structures. The phenomenon at issue is summarized as an observational generalization in (5).

(5) ExperiencerFirst
An experiencer object in stative EO structures is more likely than a patient object to occur early in the linearization.

Recall that, in contrast to dative EO verbs, accusative EO verbs are sometimes ambiguous between stative and non-stative uses. An example is given in (6).

(6) a. Der Schüler ärgert den Lehrer.
the.NOM pupil.NOM bothers the.ACC teacher.ACC
'The pupil is bothering the teacher.'

b. Die Möbel ärgern den Lehrer.
the.NOM furnitureNOM bother the.ACC teacher.ACC
'The furniture bothers the teacher.'

Although (6a), in principle, allows for an agentive-eventive and a non-agentive stative interpretation, the preferred readings vary with the animacy of the stimulus argument. As already emphasized, the exceptional properties of experiencers occur with stative EO verbs, but not with agentive (readings of the respective) EO verbs. Therefore, ExperiencerFirst is expected for (6b) but not for (6a), which would be analyzed parallel to a regular non-experiential action verb structure. This is also associated with the fact that the accusative/dative case distinction within the class of EO verbs often comes along with different analyses. Accusative EO (EO_{ACC}) structures such as *x annoys y*, contain transitive verbs whereas EO verbs with a dative case marking of the experiencer object (EO_{DAT}) are intransitives, e.g., as in *x appeals to y*. Cross-linguistically, dative experiencer verbs are uniformly non-agentive and stative (Landau 2010, Reinhart 2003, Rákosi 2006). In a number of languages, dative experiencers have been analyzed as quirky subjects, most prominently in Icelandic (e.g. Zaenen et al. 1985), but also in Modern Greek (Anagnostopoulou 1999, Landau 2010) and Korean (Gerdts & Youn 2001, Kim 1990). As for the order in EO_{DAT} structures, acceptability and corpus studies show a robust preference for an object-before-subject (OS) order in comparison to OS with EO_{ACC} verbs (Kempen & Harbusch 2004, Haupt et al. 2008, Bader & Häussler 2010b, Lamers & de Hoop 2014, Lamers & de Schepper 2010). See (7) for an example.

(7) Dem Schüler gefällt der Lehrer.
the.DAT pupil.DAT please the.NOM teacher.NOM
'The pupil likes the teacher.'

For native speakers of German, the order of the arguments in (7) is more natural than nominative-before-dative. Moreover, studies in speech comprehension show that the dative-before-nominative order in German does not provide evidence for reanalysis effects (Bornkessel et al. 2003, Bornkessel et al. 2004). Indeed, some previous studies have pointed out that the empirical evidence for the higher status of experiencers is straightforward for dative verbs, whereas the empirical situation is not clear for the majority of EO_{ACC} verbs (Fanselow 2000, Fanselow 2003, Wegener 1998). The prediction that results from these observations is given in (8).

(8) DativeFirst
A dative argument is more likely than an accusative argument to occur before the nominative argument in the linearization.

Irrespective of the different theoretical assumptions behind exceptional word order as a psych property, intuitions about the well-formedness of alternative linearizations provide the main basis for generalizations. Since these phenomena are influenced by several factors (e.g. animacy, contextual licensors, among others.) and involve gradience (see, e.g., the observations of the difference between dative and accusative experiencers), singular intuitions cannot provide sufficient evidence for estimating the exact properties of the phenomenon at issue. The goal of the present section is to provide experimental support for flexible word order as psych property in German using experiments which test the hypotheses ExperiencerFirst and DativeFirst under controlled conditions. The following subsection provides the setup for the studies.

3.1.2. Material, method and data evaluation

The central questions for the present section are, first, is there an ExperiencerFirst effect in German for dative as well as for accusative EO verbs, and second, how do ExperiencerFirst effects interact with contextually licensed fronting? In order to answer these questions, two separate experiments were designed, one for accusative verbs and one for dative verbs. Both experiments have the same design, examining the impact of verb class and context on the choice of word order, as outlined in (9). The experimental design is presented in the following paragraphs.

(9) a. Dependent variable (2 levels): argument order choice, i.e., OS vs. SO
b. Fixed factors
context (2 levels): object-topicalization licensing vs. neutral
verb class (2 levels): EO verb vs. non-EO verb

Experimental Material

The factor context provides evidence for the possibility to use the constructions at issue under conditions that license topic-fronting. The effect of a context licensing object topicalization will be compared with an all-new context establishing the baseline. The neutral context was induced with the generic question 'What's new?' preceding the target sentence. The context licensing object topicalization was established by a

set-member relationship between the discourse topic (subject of the context sentence) and the non-nominative argument of the target sentence. This relationship is known to induce topicalization (see 'partial topics' in Büring 1999) An experimental setting with a similar manipulation is reported in Weskott et al. (2011), which has shown that part-whole relationships have a strong effect on licensing object-fronting in German. The corresponding target sentences were constructed in two versions, namely SO and OS; see example (10).

(10) Die meisten Sportler hatten keine Lust auf das Training.
'Most athletes were not in the mood for training.'
a. SO: Die Übung hat dem Turner gefallen.
b. OS: Dem Turner hat die Übung gefallen.
'(SO/OS) The gymnast was pleased by the routine.'

The experiments were designed as a forced-choice test with the two options SO and OS, where the participants had to choose the best candidate depending on the question which of the target sentences has the better coherence relation with the context. The implemented set-member relationship for contextual licensing of object fronting concerns the animate non-nominative argument that is part of a group which is denoted by a salient antecedent (this manipulation differs from the material used in Weskott et al. (2011), which contained part-whole relations with inanimates). Furthermore, as is evident from (10), we induced a contrast reading between the statement in the target sentence and the expectations implemented in the context sentence. A context inducing a non-contrastive reading of (10) would be *Most athletes were in the mood for training*. The adversative relation between the context and the target sentence enhances the licensing effect. In a pilot forced-choice study in German we found that adversativity facilitates object-fronting: OS order was chosen in 78% of the cases with the adversative material (n=128; 8 speakers), while it was chosen in only 63% of the cases with the non-adversative material (n=128; 8 speakers). Hence, adversativity strengthens the effect of contextual licensing. However, it is not a necessary condition for object-topicalization as Weskott et al. 2011 obtained object fronting in German without such manipulations.

Since definiteness, animacy and agentivity are known to influence the linearization, they have to be controlled for in experiments on word order. Notably, animacy and agentivity effects may interfere with possible experiencer effects on word order. In the present experiments, animacy-first effects are controlled for by having all relevant structures contain an inanimate nominative DP and an animate non-nominative DP.

Since the animacy configuration is kept constant, effects of animacy do not interfere with the experimental conditions at issue. Additionally, agentive readings of the experiential and causative verbs are also eliminated by the use of inanimate nominatives that cannot exercise conscious control over the event. In order to control for definiteness, only structures containing two definite DPs have been included in the studies.

The factor VERB CLASS has to disentangle the fronting effect of EO verbs from a baseline established by comparable constructions. In the accusative experiment, the baseline is established with non-experiential transitive verbs governing a patient object, e.g., *retten* ('rescue') or *infizieren* ('infect'). For each experiment, we selected sixteen EO_{ACC} verbs and sixteen non-experiential transitive verbs. The tested verbs are listed in Appendix A. Hence, in this experimental design, the items are nested in the factor VERB CLASS. In the dative experiment, EO_{DAT} verbs were compared to unaccusative change of state verbs that can be construed with an unintentional causer/affectedness dative. An example is given in (11).

(11) Dem Hilfskoch ist der Nachtisch angebrannt.
the.DAT assistant-cook.DAT is the.NOM dessert.NOM burned
'The cook's assistant unintentionally burnt the dessert.'

Unintentional causers are external arguments hosted by the specifier position of an applicative phrase (ApplP) located above the VP (Schäfer 2007, Schäfer 2009b), i.e., these datives are expected to precede the nominative argument of unaccusative verbs in the linearization. Assuming that the dative experiencer is also a higher argument than the nominative stimulus, the question is whether experiencer datives differ from unintentional causers in linearization. Semantically, these constructions vary between readings implying that the higher argument involuntarily causes an event and readings in which the higher argument is affected (Ganenkov et al. 2008: 177).

Method and data evaluation

The forced-choice procedure involves a decision between two competing alternatives representing the choice of interest. The outcome is a relative judgment, which avoids the problem of absolute judgments not being anchored to a base. The relevant hypotheses are summarized in (12) and the expected distribution of the EXPERIENCERFIRST effect is presented in Table 3.1.

(12) a. VERB CLASS
Experiencer object structures license object-before-subject argument or-

dering, whereas structures containing non-experiential transitive verbs do not. In the case of EO_{DAT}, the object-before-subject order is the canonical one, parallel to structures containing unintentional causer datives.

b. CONTEXT
The preferred argument order in neutral contexts is subject-before-object. Contextual triggers (set-member relation) license object-before-subject irrespective of the inherent status of the object (i.e. independent from the psych property).

Table 3.1.: Expected effects across the factors of interest (Study I)

		CONTEXT	
		non-licensing	licensing
VERB CLASS	experiencer	*OS as psych property*	*contextually licensed OS*
	agentive	*no psych property*	*contextually licensed OS*

Based on a latin-square design 16 pseudo-randomized lists have been created, each containing 16 items (8 items of each verb class). Each item represented one of the levels of CONTEXT, so that each list contained four repetitions of each experimental condition. The targets were mixed with filler items that also present a decision between an SO and an OS order (32 for the accusative experiment and 40 for the dative experiment). Each item was presented as two context-target pairs, i.e., context C with target alternative A and context C with target alternative B. Participants were instructed to choose the best fit among two options, context with SO and context with OS, where both represent the same content. The experiments were implemented in OnExp[2] and ran as web-based studies. Each experimental session took approximately 15 minutes and was unpaid. 32 monolingual native speakers took part in each experiment.

The obtained data consists of frequencies for two complementary options, SO and OS, for four experimental conditions. In order to draw statistic inferences, we fitted generalized linear mixed-effects models on the data. In the following analyses, the fixed factors are VERB CLASS (non-experiencer; experiencer) and CONTEXT (object-topicalization licensing; neutral). Contrasts between factor-levels were modeled such that the level

[2]OnExp is developed at the Courant Research Center Text Structures at Georg-August University Göttingen. The present studies were implemented in versions 1.2 and 1.3; Copyright © Edgar Onea, 2011. http://onexp.textstrukturen.uni-goettingen.de.

of interest (VERB CLASS: experiencer; CONTEXT: object-topicalization licensing) is compared to its complement (VERB CLASS: non-experiencer; CONTEXT: neutral) as a baseline. The estimates in the following result tables represent the effect of the level of interest whereby the baseline is assumed to be zero.

Participating SUBJECTS and ITEMS were modeled as random factors. The model contained the intercepts, the slopes of both random factors with CONTEXT, and the slope of the factor SUBJECT with ITEMS (ITEMS were nested within VERB CLASS). The random effects structure was kept constant in all experiments without factor-reduction procedures following proposals in Barr et al. (2013). The significance of the fixed effects was estimated with a log-likelihood test on model comparison. For the significance of the interaction effects, we compared a model containing both fixed factors and their interaction with a model in which the interaction was removed. For estimating the significance of the main effects, we compared a model with two main effects with a model in which the effect of interest was removed. All log-likelihood tests are minimal pairs with the same random-effect structure, only differing in the presence/absence of the effect of interest. Hence, the chi-square values constantly have df=1. The analyses were performed in R (Team 2013, Version 3.0.2).

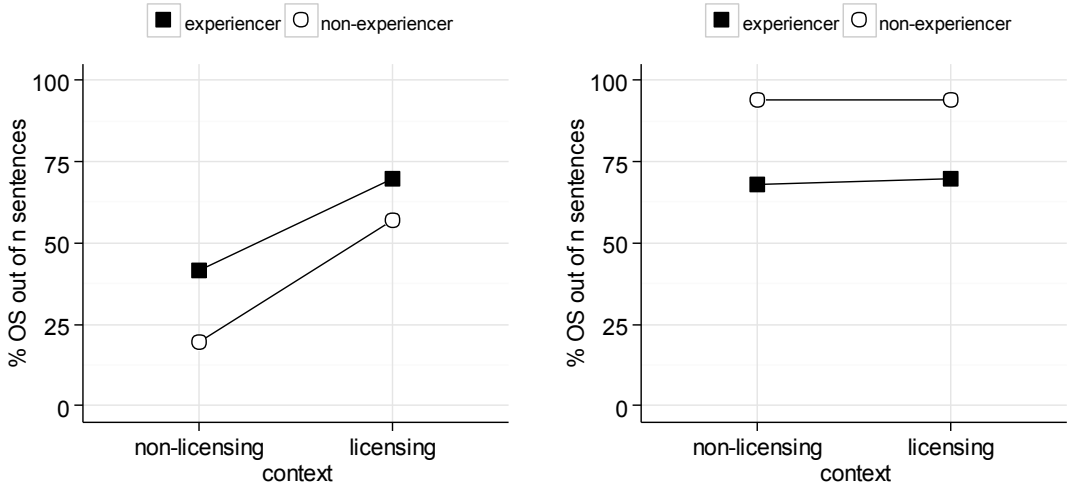
3.1.3. Results

Recall that the participants were asked to decide which context-target pair is more coherent. The obtained choices per condition are summarized in Table 3.2 and visualized in Figure 3.1.

Table 3.2.: Frequencies of (non-) experiential OS/SO preferences in German

		EO verbs				Non-EO verbs				Total	
		non-lic.		licensing		non-lic.		licensing			
		n	%	n	%	n	%	n	%	n	%
Accusative	OS	*53*	41	*89*	70	*25*	20	*73*	57	*240*	47
	SO	*75*	59	*39*	30	*103*	80	*55*	43	*272*	53
Dative	OS	*87*	68	*89*	70	*120*	94	*120*	94	*416*	81
	SO	*41*	32	*39*	30	*8*	6	*8*	6	*96*	19

There are no missing values in the dataset, i.e., the OS and SO data sum up to 128 for every condition in both experiments. The results of the accusative experiment suggest that both factors at issue have independent effects that are cumulated in the individual



(a) Accusative (b) Dative

Figure 3.1.: Proportions of OS preferences in the ACC/DAT experiments

conditions. Starting with the accusative objects, the proportions of OS orders in the non-licensing context reveal a difference: 20% OS order for non-experiencers vs. 41% for experiencers. The object-topicalization context has an additive effect, raising the proportions of OS to 57% for non-experiencers and 70% for experiencers. The proportions of OS in the dative data are generally higher. The OS orders are more frequent with non-experiencer (unintentional causer) dative constructions and the context does not exercise a substantial influence. The observations in the descriptive data are justified by the generalized linear mixed effects model, whose parameters are summarized in Table 3.3.

Table 3.3.: Mixed effect regression results of the ACC/DAT experiments (Study I)

	Fixed factor	Estimate	$\chi^2(1)$	p
Accusative	Intercept	−1.95		
	VERB CLASS (experiencer)	1.55	16.2	< .001
	CONTEXT (licensing)	2.55	12.9	< .001
	VERB CLASS:CONTEXT	−.48	.7	.3
Dative	Intercept	2.81		
	VERB CLASS (experiencer)	−1.93	29.8	< .001
	CONTEXT (licensing)	.42	.1	.8
	VERB CLASS:CONTEXT	−.39	.3	.5

For the accusative data, the impacts of the factors CONTEXT and VERB CLASS are significant, but do not interact significantly. The estimates reveal that CONTEXT has a stronger influence than VERB CLASS. In the dative data, the only explanatory factor is VERB CLASS, which captures the increased occurrence of OS orders with non-experiencer verbs.

3.1.4. Discussion

Recall the three relevant aspects of flexible order which were tested with the studies: *(i)* a comparison of experiencer arguments with other constituents that are syntactically similar in order to identify the particular properties of EO verbs, *(ii)* a comparison of the role of accusative and dative experiencers, and *(iii)* a comparison of the effects of experiencer objects on linearization with the effects of a specific licensing context. The discussion in the following will comment on all three aspects.

As for the comparison with non-EO structures, the results confirm that there is an EXPERIENCERFIRST effect for EO verbs in German. This contrast is based on a comparison with verbs that are non-experiential but nevertheless involve an individual-denoting object. In the accusative experiment, EO verbs were tested against (mostly causative) transitive non-EO verbs. In the dative experiment, experiencer-objects have been compared with unintentional causer datives. The dative experiment generally reveals a high proportion of initial datives, confirming the assumption that dative arguments tend to occur before nominative arguments. However, the findings also contain a main effect of VERB CLASS such that unintentional causers appear more frequently first in the clause than dative experiencers. This difference either reflects structural differences or can be explained by a discourse asymmetry. Under the latter view, statements about unintentional causers are judged as being more likely than statements about experiencers. However, further research is needed in order to examine this option.

As for the accusative/dative contrast, the findings confirm the observations and intuitions that datives are more likely than accusatives to occur first in an utterance (OS choices were 34% higher for EO_{DAT} structures). The large difference between datives and accusatives directly reflects the view that EO_{DAT} are unaccusatives, involving a dative experiencer in a higher position than the governed nominative; see (13a). The same holds for unintentional causers which occupy the specifier position of applicative phrases (ApplP), taking a higher position than the theme in the clause structure. See (13b).

(13) Dative-before-nominative orders

a. [VP experiencer$_{DAT}$ [V´ stimulus$_{NOM}$ V]] EXPERIENCER DATIVES

b. [ApplP causer [VP theme V]] UNINTENTIONAL CAUSER DATIVES

Let us now examine the potential effects of structural differences between EO_{ACC} and EO_{DAT}. It has been claimed that linearization preferences are no reliable indicators of phrase structure, since independent principles may lead to linearization preferences that do not directly reflect hierarchical structure (Müller 1999). In particular, assumptions about phrase structure should be primarily based on evidence for hierarchical relations, and this is not the type of data provided by the experiments under discussion. In the following, linearization statements are statements about the order of cases (in the sense of Müller 1999). The data reveals a contrast between the order of accusative and dative DPs. In the absence of a contextual trigger, accusative DPs most frequently follow nominative DPs. On the other side, dative DPs preferably precede nominative DPs. This generalization is summarized in (14).

(14) Case order: linearization principles

a. Nominative < accusative

b. Dative < nominative (with unaccusative verbs)

The case order in (14a) corresponds to phrase structure accounts that analyze accusative EO verbs on a par with canonical transitive verbs (Sternefeld 1985, Grewendorf 1989, Fanselow 2000). Accounts assuming that accusative experiencers are located higher in the phrase structure than the nominative stimuli (e.g. Landau 2010) need additional assumptions in order to account for the accusative/dative contrast in the presented data, i.e., they need to assume that the linearization principles on case order are independent from phrase structure. The case order in (14b) must be restricted to a particular type of dative, i.e., the dative of unaccusative predicates, which applies both to dative experiencers and unintentional causer datives. It does not apply to lexically selected datives (e.g. with verbs like *helfen* 'to help'), nor to the dative of indirect objects. The relation of the linearization statement in (14b) to the phrase structure is straightforward: datives with unaccusative verbs are higher than nominatives in the verb projection (see Schäfer 2009a for unintentional causes). Note that explanations tracing the observed phenomena back to animacy asymmetries (Kempen & Harbusch 2004) can be rejected with the data, since animacy configurations were kept constant in both experiments. However, the conclusion is not that animacy does not play a role, but that the difference between accusatives and datives is not explained by animacy. The observed

differences are informative for the influence of VERB CLASS and CONTEXT of each case – independently of animacy effects.

A third aspect of flexible word order that has been controlled in the present studies was contextual licensing. The accusative experiment revealed a main effect of CONTEXT, showing that the same construction that appears with fronted experiencers can be triggered by contexts inducing topicalization. Preposing an object in German involves scrambling the object over the subject, which is reported to be triggered by several preferences on linearization such as case, animacy, among others. The critical issue is how speakers select linearizations in all-new contexts. The results may reflect preferences in establishing aboutness relations with particular types of arguments. The intuition that is reflected in speakers' choices is that it is more likely to make a statement about an experiencer than about the patient of a canonical verb. This preference is reflected in object-fronting construction that can host aboutness topics, which is the case for scrambled objects in German. What is more, a particular kind of contextual licensing that affected object-topicalization has been used. In particular, the contexts involved a set-member relationship between an argument in the target clause and a salient antecedent in discourse. The findings enrich the knowledge about the contextual conditions that induce object-fronting (see previous findings on whole-part relations in Weskott et al. 2011).

3.1.5. Section summary

The goal of the present chapter is to find experimental support for German psych properties which would emphasize the special status of EO verbs. The respective studies provide replicable data designed and collected under identical conditions. The results of Study I show that flexible word order as a psych property can be confirmed for dative and accusative EO verbs in German. As mentioned before, the empirical situation with EO_{ACC} was especially difficult. The study, however, confirms the view that accusative experiencers, too, have a tendency to occur sentence-initially, compared to non-experiential transitive verbs. Note that the studies presented here are in fact part of a larger typological study which compares German, Greek, Hungarian and Korean accusative and dative verbs with respect to their preferred argument linearizations following licensing and non-licensing contexts. Such comparisons allow us to draw conclusions about the sources of particular phenomena by taking the grammatical properties of the investigated languages into account. Cross-linguistic experiments, in general, are a promising paradigm bearing advancements in our knowledge about grammati-

cal phenomena. I refer the reader to Temme & Verhoeven 2016 for more details. A question that remains open is what exactly the difference is between experiencer and unintentional causer datives. Further research needs to clarify the conditions of both verb classes with respect to the strength of 'dative-before-nominative' preferences.

Study I: Exceptional linearization with EO verbs

i. Flexible argument order can be confirmed as a psych property for German accusative and dative EO verbs: experiencer objects are more flexible when it comes to the out-of-the-blue linearization of their arguments, as compared to non-EO verbs.

ii. Reaffirming the observations in the literature, dative-before-nominative orders with unaccusative verbs are clearly preferred over the inverted alternative. The order between nominative stimuli and accusative EO verbs is less rigid.

iii. Partial topicalization involving contrast as coherence relation license object fronting. Contextual licensing together with the verbs' status as an EO verb shows the strongest licensing of object-before-subject orders.

3.2. Study II: Exceptional Backward Binding with EO verbs

Backward Binding (henceforth BB) too is argued to belong to the special properties of EO verbs in several languages. In general, anaphors inside non-derived subjects are banned by Principle A of Binding Theory, which states that proper binding requires c-command (Reinhart 1976, Reinhart 1983, Chomsky 1980, Chomsky 1981). As illustrated before, unlike transitive action, EO verbs seem to license such structures. BB has been widely discussed in the theoretical literature, e.g., Postal (1971), Giorgi (1984), Pesetsky (1987), Belletti & Rizzi (1988), Pesetsky (1995), Broccias (1997), Cançado & Franchi (1999), Reinhart (2001), Platzack (2009), Sato & Kishida (2009) and Landau (2010), among many others. Many researchers derive BB effects under preservation of Binding Principle A, assuming that the exceptional binding reflects the special lexical-semantic and

syntactic properties of EO verbs. Section 3.2.1 briefly reviews the analyses of psych effects in general, and BB in particular.

BB may also arise in configurations that allow for coindexing of the anaphor and the antecedent without c-command relations, as BB data across the literature involves anaphors that are often analyzed as exempt from Binding Theory (BT). Furthermore, even in regular cases, such as in variable binding configurations, the effect may stem from a binding illusion induced by implicit operators that control the coreference of anaphor and antecedent. These phenomena are discussed in Section 3.2.2, which establishes the empirical requirements in order to test genuine instances of BB in German.

The phenomena at issue involve several sources of variation, which is partly reflected in controversial judgments reported in the literature. Hence, in order to clarify the evidential basis of the relevant facts, empirical designs are needed that control this variation. Although there are some experimental findings based on preference and acceptability of binding and coreference data in general, i.e., Hirschberg & Ward (1991), Gordon & Hendrick (1997), Asudeh & Keller (2001), Carminati et al. (2002), Goldwater & Runner (2006), as far as known, there is no experimental research of BB as a psych effect. Filling this gap, the following subsections present two experiments on BB in German – one with accusative, and one with dative experiencer verbs. Section 3.2.3 presents the experimental material and method. In Section 3.2.4, the experimental results are presented, followed by a discussion in Section 3.2.5.

3.2.1. Backward Binding as a psych effect

It has been claimed that EO verbs license bound reflexives and reciprocals embedded inside the stimulus subject. Examples are given below for accusative (15) and dative EO verbs (16).

(15) Accusative EO verbs

a. Pictures of each other$_i$ annoy the politicians$_i$.

b. Stories about herself$_i$ generally please Mary$_i$.
(Pesetsky 1987: 127)

(16) Dative EO verbs

a. Each other$_i$'s remarks appealed to [John and Mary]$_i$.

b. Each other$_i$'s welfare mattered to the students$_i$.
(Pesetsky 1995: 53)

Although the structures in (15) and (16) do not warrant a c-command relation between the coindexed antecedent and anaphor, they are reported to be grammatical. This is taken as evidence for a special status of experiencer objects in contrast to patient objects with transitive action verbs, e.g., 'x_{AG} loves/visits/hugs y_{PAT}'.

Since, as a rule, subjects are canonical binders, experiencer objects have been analyzed as either underlying or covert subjects in order to account for this behavior. According to Belletti & Rizzi (1988) and Pesetsky (1995), the status of surface experiencer objects as deep structural subjects enables them to c-command and bind their anaphors at a pre-derivational level. Campbell & Martin (1989), Endo (2007), and Sato & Kishida (2009) assume a covert movement of the object experiencer to a designated position from which it c-commands the relevant bindee (cf. Chapter 2). However, several sources of variation challenge the generalizability of psych properties. That is, for example, that dative EO verbs in contrast to accusative EO verbs generally show stronger psych effects (cf. Section 3.1). Furthermore, the lexical-semantic ambiguities of EO_{ACC} complicate the picture (cf. Section 2.2.1). Recall that the latter observation is mainly relevant because only non-agentive EO structures exhibit psych effects (cf. Arad 1998a, Landau 2010, Verhoeven 2010). To illustrate this again, the different interpretations for an EO verb such as *frighten* are paraphrased in (17).

(17) a. Nina frightened Laura deliberately/to make her go away. AGENTIVE
b. Nina frightened Laura unintentionally/accidentally. EVENTIVE
c. The explosion/the noise/the thunderstorm frightened Laura. STATIVE
(Arad 1998a: 3)

Furthermore, within the class of non-agentive structures, the type of subject is critical to the emergence of psych effects (Reinhart 2003). To be more precise, only EO structures containing subject matter subjects are claimed to license BB, whereas causer subjects block this option, as shown by the contrasting structures in (18).

(18) a. His_i health worries every $patient_i$. SUBJECT MATTER STIMULUS
b. * His_i doctor's letter worried every $patient_i$. CAUSER STIMULUS
(Reinhart 2003: 271)

In (18a), the worries are about the health, whereas in (18b) the letter causes the worries (which then are about something else). According to Reinhart (2003)'s analysis, only a subset of nominative arguments of non-agentive EO verbs, namely subject matter subjects, originates as internal arguments.

The insights into the sources of variation suggest that BB is an option only for a subset of the occurrences of EO verbs, restricted by the verbal aspect and the subject role. These restrictions raise the question of whether the exceptional effects are a genuine property of EO verbs, or whether they mirror the aspectual and/or thematic properties that frequently accompany these verbs. In this vein, some accounts cast doubt on the relevance of BB to the structural analysis of EO verbs (Bouchard 1995, Arad 1998a, Cançado & Franchi 1999, Landau 2010). This view is supported by the observation that BB also seems to be licensed in structures that do not contain psych verbs, such as the periphrastic causative structures in (19) or the examples in (20).

(19) a. News items about herself$_i$ generally make Sue$_i$ laugh.
(Campbell & Martin 1989: 45)

b. The picture of herself$_i$ on the front page of the Times made Mary$_i$'s claim seem somewhat ridiculous.
(Pollard & Sag 1992: 20)

(20) a. ? These stories about himself$_i$ don't describe John$_i$ very well.

b. These nasty stories about himself$_i$ broke John$_i$'s resistance.
(Bouchard 1995: 296)

Note that the unaccusative analysis, i.e., an analysis in which the anaphor-containing phrase originates in an internal argument, is rather unlikely with these examples (see Campbell & Martin 1989, Bouchard 1995, Pesetsky 1995). That is because the binding relations in (19) and (20) cannot be reconstructed, even under a derived subject analysis. Rather, the reflexive in these structures must be licensed by independent factors (see Section 3.2.2).

Next to the variation in BB emerging with different verb classes and EO structure types, some authors have pointed to cross-linguistic differences. Whereas EO-related BB has been argued to exist in languages like English, Italian (Belletti & Rizzi 1988), Hungarian (É. Kiss 2002, Rákosi 2006, Rákosi 2015), and Chinese (Cheung & Larson 2015), V2 languages such as German, Icelandic, Swedish and Norwegian are claimed to be restricted with respect to exceptional binding in the psych-domain (Ottósson 1991, Broccias 1997, Platzack 2009, Kiss 2012). Following Ottósson (1991) and Platzack (2009), the basic syntactic configuration (VP vs. CP syntax) prevents BB in these languages. However, these are strong claims about the relevance of language-specific characteristics that require stronger certainty about the BB data in general. As far as known, with the exception of Kiss (2012), there is no in-depth discussion of BB as a psych effect in

German and there is no experimental testing. With the current state, there would be no reason to expect any blocking effects, as German shares all the relevant structural properties that should allow for BB.

In sum, BB is predicted to occur with a subclass of EO verbs, namely those verbs that are stative and take subject matter stimuli (Reinhart 2003). Since the reported judgments of the phenomenon vary considerably both between different constructions and between languages (and sometimes even between speakers), we need replicable data that control the crucial sources of variation in order to adequately evaluate the possibility of BB with EO verbs.

3.2.2. Backward Binding as a binding illusion

The present section discusses cases in which the coreference of an anaphor and its antecedent under a backward relation seems to be licensed independently from the special properties of EO verbs. Such binding illusions find valid explanations outside the established c-command relation. The sources of illusory binding are diverse. After setting up the empirical requirements for proper binding, the following paragraphs will focus on two relevant sources of illusory binding: first, logophoric interpretations of anaphors within picture NPs, and second, generic readings induced by implicit event quantification. These issues are crucial for the design of the experiment presented in the subsequent sections.

Proper binding vs. coreference

Regular binding involves two NPs in an anaphoric relationship at sentence-level. Principles A and B of Binding Theory (BT) indicate that the bound and coreferential status of a pronoun depends on the pronoun type itself, i.e., anaphor vs. pronominal, but also on the type of the binder. The two basic configurations that qualify for proper binding are presented in the following, i.e., reflexive binding and variable binding.

True anaphors are fully dependent elements, such as reflexives (*himself*) and reciprocals (*each other*). According to Binding Principle A of BT, they must be bound to an antecedent-NP within their binding domain in order to receive an interpretation. This is illustrated in (21) and (22) for reflexive and reciprocal anaphors, respectively. BT's Principle B addresses pronouns, which, by contrast, may not be bound inside the relevant domain; see (23).

(21) a. Peter$_i$ saw himself$_i$ in the mirror.

b. * Mary$_i$ saw himself$_j$ in the mirror.

(22) a. [Peter and John]$_i$ saw each other$_i$ in the mirror.

b. * Peter$_i$ saw each other$_j$ in the mirror.

(23) Peter$_i$ saw him$_{*i/j}$ in the mirror.

Many pronouns occupy an intermediate position between the pronominal and the reflexive use: possessive pronouns can be interpreted as both coindexed and coreferential with some antecedent NP outside its binding domain as well as coindexed with an antecedent inside the clause. Consider example (24) and the varying indices at the pronoun.

(24) Peter$_i$ saw his$_{i/j}$ friend in the mirror.

However, in order to obtain pronominal binding with requirements parallel to anaphoric binding of reflexives, the pronoun must be coindexed with a quantifier phrase (QP). Quantifiers semantically bind coindexed variables that are located within their scope. A key characteristic of coreferentiality is that the coindexed pronoun in (25a) can simply be replaced by *John*. This does not hold true for the pronoun in (25b). In this bound-variable configuration, the interpretation of the coindexed pronoun fully depends on the interpretation of the quantifier.

(25) a. John$_i$ said that he$_i$ was okay.

b. No woman$_i$ doubts that she$_i$ is okay.
(Büring 2005: 81)

In sum, the two configurations summarized in (26) are the only reliable binding relations between two NPs. Also, bindees such as in (26a) seem to be the only non-ambiguous option to evaluate structures under bound readings, as the pronominals in (26b) always allow for coreference outside their clause.

(26) a. Reflexive binding:
An NP c-commanding a coindexed reflexive/reciprocal anaphor

b. Variable binding:
A QP c-commanding a coindexed pronominal/variable

Picture-NP anaphors

Accounts that reject BB as a psych effect assume that it can be subsumed under well-known phenomena involving BT-exemption. Recall the examples in (19) and (20), which cannot be explained with a derived subject analysis. These examples contain reflexive or reciprocal anaphors embedded in so-called picture NPs. Picture NPs are headed by a nominal referring to a representation of an individual, e.g. *picture of sb.*, *story about sb.* or *remark about sb.* These anaphors may relate to a referent salient in discourse (e.g. the point of view), in which case they behave like logophoric pronouns. That is, the coreference is not established by the structural dependencies in the clause. Moreover, in languages such as English coreference under logophoric dependencies is also possible across clausal boundaries. This long-distance binding violates the domain requirements of binding relations (Pollard & Sag 1992). Examples containing these anaphors are exempt from Binding Theory and do not represent proper anaphoric binding (Reinhart & Reuland 1993; see also further examples in Pollard & Sag 1992). Following these considerations, picture-NP anaphors and logophoric reflexives are generally not suitable to test BB as a psych effect due to their potential exemption from binding requirements (Bouchard 1995, Cançado & Franchi 1999, Landau 2010).

In contrast to English, German dismisses exempt reflexives (Kiss 2012). As a consequence, picture-NP reflexives are argued to be ungrammatical inside subjects of EO psych verbs, leading to the conclusion that BB is unavailable with EO psych-verbs in German. The examples in (27) show the anaphor-initial (27a) and antecedent-initial (27b) versions of German dative EO structures as judged in Kiss (2012).

(27) a. * Die Bilder von sich$_i$ gefielen den Kindern$_i$.
the pictures of themselves pleased the children

b. * Den Kindern$_i$ gefielen die Bilder von sich$_i$.
the children pleased the pictures of themselves
(Kiss 2012: 161)

German picture-NP reflexives are informative for BB, as they exclude an antecedent outside the clause. However, the well-formedness of these structures is not uncontroversial. For example, the judgment of (27b) has been disputed by other authors (see Fischer 2015). A further problem (that may be crucial for an experimental manipulation) is the influence of a potential possessive vs. representational reading of these structures. In German, picture-NP reflexives are not suitable for encoding possessive relations whenever a possessive pronoun can be used instead (e.g. ??die Möbel von sich

'the furniture of himself'). This may account for the ungrammaticality of (27b). In general, the properties associated with picture-NP reflexives could overwrite a potential psych-related BB.

Event quantification

Another source of binding illusions is the influence of event genericity on the interpretation of pronouns (Fox & Sauerland 1996). As illustrated in (28a), a violation of the c-command requirement in bound-variable configurations leads to a Weak Crossover (WCO) effect: the grammaticality is compromised when the quantificational antecedent crosses the anaphoric pronoun at LF. This violation is absent in (28b), even though it would be predicted that quantifier raising leads to the same effect.

(28) a. ?? Last year, her_i thesis year was the hardest for every $student_i$.

b. Her_i thesis year is the hardest for every $student_i$.
(Fox & Sauerland 1996: ex. 32)

According to Fox & Sauerland (1996), the well-formedness of (28b) is triggered by an implicit genericity operator that portions the world into relevant singular situations, such that the pronoun relates to one individual in each of these situations. In this view, the possessive pronoun has the properties of an E-type pronoun, i.e., a definite expression, whose interpretation in this type of structure depends on the generic operator, and not on the coindexed quantifier. Thus, the relation between the two nominals is not based on true binding between a universal quantifier (*every student*) and possessive pronoun. The conditions of the universal quantifier *every* are trivially fulfilled by assuming that there is exactly one individual in each situation under the genericity operator. In (28a) on the other hand, the sentence-initial adverb 'last year' supports the particular interpretation. Thus, this structure does not contain an operator that creates conditions for the occurrence of binding illusions. Instead, binding is excluded as the c-command requirement for true binding is not fulfilled, just as BT predicts. Assuming Quantifier Raising at LF for episodic cases, WCO effects are theoretically predicted for quantified-object antecedents that bind possessive pronouns inside the subject.

Now, let us recall the data from Reinhart (2003) in (29) and (30), which indicate that, unlike agentive verbs, EO verbs license backward variable binding. As already mentioned in Section 3.2.1, this is attributed to the underlying syntactic or thematic characterization of experiencer objects as subject-like arguments that consequently serve as a

proper binder, in contrast to canonical patient objects. The corresponding LF structures are represented in (29b) and (30b).

(29) a. His_i health worries_{EO} every patient_i.

b. $[\text{every patient}_i]_j$ $[[\text{his}_i \text{ health}]_k$ $[\text{worries } t_j \ t_k]]$

(30) a. * His_i doctor visited_{AG} every patient_i.

b. $[\text{every patient}_i]_j$ $[[\text{his}_i \text{ doctor}]$ visited $t_j]$

The EO structure in (29) is analyzed by treating theme subjects as derived subjects and having c-command requirements that can already be met at deep structure. This prevents the occurrence of any WCO effects triggered by Quantifier Raising. For the agentive structure in (30), on the other hand, the c-command relation is established at LF by movement across a coindexed variable, violating crossover restrictions. However, examples of this kind are not controlled with respect to a possible implication of genericity operators. A potential interaction of the quantified nominals with implicit or explicit event quantification is relevant for the BB data. As discussed above, a generic version of (29/30), paraphrased in (31), would not represent true pronominal binding.

(31) a. From time to time, his_i health worries every patient_i.

b. From time to time, his_i doctor visited every patient_i.

As has been shown before, the WCO effect disappears under the generic reading of a structure, and the bound variable interpretation of the pronoun becomes available (as in ex. 31). Thus, it is possible that the diagnosis of BB structures, as they are reported in the literature, is based on illusory binding configurations induced by interactions with sentence-level quantification, especially if the compatibility with genericity operators varies within and between different verb classes. If we take into account assumptions on the interaction of stativity and genericity (Chierchia 1995, Glasbey 2006), it is plausible to assume that the preference for a generic interpretation is stronger with EO verbs in their stative reading than with agentive verbs (see also Arad 1998a, Arad 1998b). Hence, judgments of BB structures made without explicitly-introduced sentence aspect may be based on this kind of preference, instead of an argument structural difference between verb types.

3.2.3. Material, method and data analysis

A general issue that emerges from the previous discussion is the considerable variation that is associated with BB. This includes issues of lexical aspect of the verbs, properties

of the involved NPs, and event quantification, as well as controversial judgments of similar data by different authors (see also the discussion in Grafmiller 2013). The research question of the present study is whether EO verbs have an effect on the acceptability of BB, an effect which is not reducible to the properties of event quantification. In order to answer these questions, two separate experiments were designed, one for accusative and one for dative EO verbs. Both experiments have the same design, examining the impact of VERB CLASS and SENTENCE ASPECT on a decision about acceptability, as outlined in (32). The experimental design is outlined in the following paragraphs.

(32) a. Dependent variable (2 levels): acceptability choice, i.e., *yes/no*

b. Fixed factors
SENTENCE ASPECT (2 levels): generic vs. particular
VERB CLASS (2 levels): EO verb vs. non-EO verb

Experimental Material

Section 3.2.2 addressed several aspects that need to be controlled for, in order to achieve a proper binding configuration. Since structures with inherently reflexive (*himself*)/ reciprocal (*each other*) anaphors should not be used uncritically, we examine the reflexive use of possessives (*his*, *her*, etc.). Furthermore, we have seen that generic readings are strongly accessible for an unbound interpretation of pronoun and quantifier. Thus, we need to control for SENTENCE ASPECT by using explicit adverbial markers and the preferred tense marking of the verb, respectively. Example structures are provided in (34) below.

As for the factor VERB CLASS in the accusative experiment, one can make use of Reinhart (2003)'s observation that the crucial type of EO structure licensing BB is the one with subject matter (SM) subjects. In many cases, the distinction between SM and the alternative causer subject is quite vague. Usually, the interpretation strongly depends on contextual information, which can either be provided by sentence-internal lexical material or external information. For example, this information could be the expression of an alternative causer, leading to a SM interpretation (Reinhart 2003). In order to direct the primary subject interpretation towards a SM role, we chose verbs according to their preferences of preposition selection for the stimulus argument when built as experiencer subject structures. It is argued that the SM role is expressed by an *about* phrase in English (Pesetsky 1995). In German, the complements of the ES alternates of EO verbs are either headed by *von* ('by') or *über* ('about'). Accordingly, the preposi-

tion that indicates a SM role is *über*. Based on PP-type selection, at least three different groups of EO verbs may be identified, which are exemplified in (33). That is, there is a class that primarily licenses *von* PPs (33a), another licenses *über* complements (33b), while a third contains verbs that frequently co-occur with either preposition (33c).

(33) a. EO verbs primarily licensing the preposition *von*
angewidert ('disgusted'), ermüdet ('tire out'), begeistert ('sparked'), provoziert ('provoked'), fasziniert ('fascinated'), verunsichert ('anxious'), genervt ('annoyed'), beeindruckt ('impressed'), motiviert ('motivated'), gelangweilt ('bored'), etc.

b. EO verbs primarily licensing the preposition *über*
betrübt ('saddened'), erfreut ('delighted'), bestürzt ('distraughted'), verärgert ('upset'), amüsiert ('amused'), verwundert ('suprised'), deprimiert ('depressed'), empört ('outraged'), beunruhigt ('concerned'), entsetzt ('appalled'), erstaunt ('stunned'), etc.

c. EO verbs licensing both prepositions *von* and *über*
enttäuscht ('disappointed'), überrascht ('surprised'), erschrocken ('frightened'), begeistert ('thrilled'), verblüfft ('bewildered'), schockiert ('shocked'), etc.

Based on the representation of SM arguments, one can argue that EO verbs which do not (or only marginally) allow *über* complements with their ES-alternates do not easily license SM subjects. Thus, for the test material, the class of EO verbs is restricted to those verbs that primarily license *über* with their ES alternate, i.e., the verbs in (33b). As far as possible, it has also been avoided to use verbs with an established tendency to choose *von* PPs, in order to maximally reduce the likelihood for agent or causer interpretations of the subject. For the agentive verb type, canonical transitive verbs with agent subjects were used. Transitive verbs with causer subjects have been avoided, as BB effects may be influenced by the causative feature (Cheung & Larson 2015, Pesetsky 1995).

The selected verb types show different preferences with respect to the animacy of their subjects. Agents are predominantly animate, whereas the typical SM subject is inanimate. There are reasons to follow these preferences (although a design with only animate subjects would have technically been possible). An inanimate subject of EO structures is necessary in order to obtain the required SM interpretation, and in order to avoid agentive interpretations, which are only possible with animate subjects. Fi-

nally, parallel for both verb classes, we used complex subjects, in which the possessive variable is embedded within an animate genitive phrase.

Illustrative examples of the accusative study are given in (34) (see also Appendix–B for a complete list of verbs and target sentences of Study II). Note that we adjusted the generic structures in (34c)-(34d) to the past perfect syntax of the particular structure in (34a)-(34b) by using the modal operators *können* 'may' and *würden* 'would' as finite auxiliaries in V2, in addition to the quantificational adverbs. This was expected to support the illusory binding interpretation.

(34) a. Particular, experiential
Neulich haben die Meinungen seiner Schwester jeden verwundert.
lately have the opinions his.GEN sister.GEN everyone astonished
'Lately, his sister's opinions astonished everyone.'

b. Particular, agentive
Neulich haben die Schulkameraden seiner Schwester jeden gehänselt.
'Lately, his sister's school buddies teased everyone.'

c. Generic, experiential
Hin und wieder können die Meinungen seiner Schwester jeden verwundern.
'Every now and then, his sister's opinions may astonish everyone.'

d. Generic, agentive
Hin und wieder würden die Schulkameraden seiner Schwester jeden hänseln.
'Every now and then, his sister's school buddies would tease everyone.'

The material for the dative study was compiled according to the same principles. Twelve dative EO structures were contrasted with twelve dative agentive structures. German exhibits a restricted class of agentive verbs with inherent dative case. These verbs are all intransitives. However, the agentive structures are uniform in their thematic properties, i.e., $\text{Agent}_{\text{NOM}}$ – $\text{Theme}_{\text{ACC/DAT}}$. Additionally, all verbs considered in the dative experiment uniformly select *have* as perfect auxiliary.

(35) a. Particular, experiential
Letztens haben die Träume seiner Kinder jedem gefallen.
'Lately, his children's dreams pleased everyone.'

b. Particular, agentive
Gestern haben die Schulfreunde seiner Kinder jedem zugehört.

'Yesterday, his children's school buddies listened to everyone.'

c. Generic, experiential
Hin und wieder können die Träume seiner Kinder jedem gefallen.
'Every now and then, his children's dreams may please everyone.'

d. Generic, agentive
Prinzipiell würden die Schulfreunde seiner Kinder jedem zuhören.
'In principle, his children's school buddies listen to everyone.'

The fillers contained three control structure types that are expected to be informative for the effect level in comparison to related phenomena. Each type occurred in six lexicalizations. The control structures are illustrated in (36); the NPs to be tested for coindexation are underlined. The Principle-C violation in (36a) is expected to offer a baseline for the speakers' behavior with a configuration where coindexing is categorically excluded. The other control structures allow for coindexing. (36b) is an example of backward coreference, with a proper name as antecedent. Forward binding was implemented through a passive construction, see (36c) for the accusatives and (36d) for the dative agentive verbs. Since dative EO verbs do not license passives, forward binding with these verbs was tested by inverting the order of the arguments, as illustrated in (36e).

(36) a. Principle-C violation
Jetzt wird er gleich den Kellner rufen.
'Now, he will call the waiter.'

b. Backward coreference
Heute haben die Fragen seiner Mutter Micha verärgert.
'Today, his mother's question annoyed Micha.'

c. Forward binding (accusative experiment)
Gestern wurde jeder von den Beratern seiner Bank überprüft.
'Yesterday, everybody was checked by his bank's consultants.'

d. Forward binding (agentive dative verbs)
Gestern wurde jedem von den Beratern seiner Bank gedroht.
'Yesterday, everybody was threatened by his bank's consultants.'

e. Forward binding (dative experiencer verbs)
Letztens haben jedem die Träume seiner Kinder gefallen.
'Lately, everybody was pleased by his children's' dreams.'

Method

Two acceptability studies have been conducted, testing BB structures that consider two factors which are crucial for BB, namely VERB CLASS (experiencer/agentive) and SENTENCE ASPECT (particular/generic). Further factors relevant for this syntactic possibility, in particular, subject type and the type of anaphor, were kept constant across the relevant structures. The same factorial design is applied to accusative and dative EO structures. The hypotheses are summarized in (37) and the expected distribution of the BB effect is presented in Table 3.4.

(37) a. VERB CLASS
Experiencer structures containing subject matter subjects license BB; structures containing canonical transitive verbs with agentive subjects do not.

b. SENTENCE ASPECT
BB with particular sentence aspect violates Binding Principles and triggers WCO effects; generic sentence aspect licenses illusory BB not determined by Binding Principles.

Table 3.4.: Expected effects across the factors of interest (Study II)

		SENTENCE ASPECT	
		particular	generic
VERB CLASS	experiencer	*proper BB*	*illusory BB*
	agentive	*no BB*	*illusory BB*

The consequences of these predictions for the research question are straightforward: if proper BB with experiencer verbs exists, one expects a main effect of VERB CLASS. If SENTENCE ASPECT has a main effect too, this factorial design will lead to an interaction of VERB CLASS and SENTENCE ASPECT with respect to the acceptability of BB. If the BB effects with psych verbs are just artifacts of event quantification, the results are only expected to involve a main effect of SENTENCE ASPECT.

The predictions in Table 3.4 refer to the possibility of BB under particular conditions of VERB CLASS and SENTENCE ASPECT. The type of data that we collected in this study involves gradience, which arises through the examination of a sample of speakers and a sample of lexicalizations of the syntactic structures at issue. That is, the experimental data will not directly (dis-)confirm the possibility of BB under the conditions at issue,

but they will inform us about the influence of the conditions at issue. It is possible that the effect of VERB CLASS is not identical to the effect of SENTENCE ASPECT, since BB arises through different mechanisms in these phenomena (syntactic dependency vs. fulfillment of the coindexation through the genericity operator). Furthermore, gradience may result from the processing complexity of the examined configurations.

In order to offer an estimation of the obtained effect levels, the filler items included three control structures from the same grammatical domain (recall example 36 above). The first, a Principle-C violation, was expected to have the lowest degree of acceptability. Forward binding examples and examples involving backward coreference were expected to show the acceptability level of generally acceptable configurations.

Procedure and data evaluation

The BB reading of the target sentences competes with a second reading in which the pronoun refers to an antecedent outside the clause. The latter reading is always acceptable and probably the preferred option (Büring 2005: 42). In order to exclude this interpretation, the putative coindexed expressions were color-coded and the participants were asked to judge the acceptability of the coindexed reading. The instruction in (38) was presented with each target. During the training section, participants were presented examples with variable binding and were given paraphrases illustrating the coindexed reading of these examples. Participants were instructed to make a binary choice: acceptable vs. non-acceptable. Previous studies show that scalar and binary acceptability measurements are equally informative for our purposes (Bader & Häussler 2010a, Weskott & Fanselow 2011).

(38) Finden Sie den Satz akzeptabel unter der Bedingung, dass sich die beiden markierten Wörter auf dieselbe Person beziehen?
'Do you find the sentence acceptable under the condition that the highlighted words relate to the same person?'

The fact that the coindexed reading of the marked material is not enforced may introduce a bias towards judging sentences as acceptable, but not with the intended reading. This potential bias is not confounded with the conditions of interest, i.e., it is expected to be constant across conditions. The experiments were run as web-based studies. Each experimental session took approximately 15 minutes. We prepared three pseudo-randomized lists randomly assigned to the participants. Each list contained 16 BB target sentences (4×4; 1:4 target-filler ratio). A list included one target sentence per

item (of the 12 items), as characterized before. The remaining four target sentences per list were distributed over the three lists, such that some lexicalizations occurred more than once. However, we excluded multiple occurrences of a target verb in a list. The control fillers were distributed over the experimental lists in such a way that each list contained two lexicalizations per control type.

The experimental outcome is frequencies of positive (*yes*) and negative (*no*) decisions for all factorial conditions. In order to draw statistical inferences, we fitted generalized linear mixed-effects models. In both experiments, the fixed factors are SENTENCE ASPECT (particular/generic) and VERB CLASS (experiential/agentive) as well as their interaction. Contrasts between factor-levels were modeled such that the level of interest (VERB CLASS: experiential; SENTENCE ASPECT: generic) is compared with its complement (VERB CLASS: agentive; SENTENCE ASPECT: particular) as a baseline. The estimates represent the effect of the level of interest, whereby the baseline is assumed to be zero and positive values indicate a shift toward positive (*yes*) choices. SUBJECTS and ITEMS were modeled as random factors.

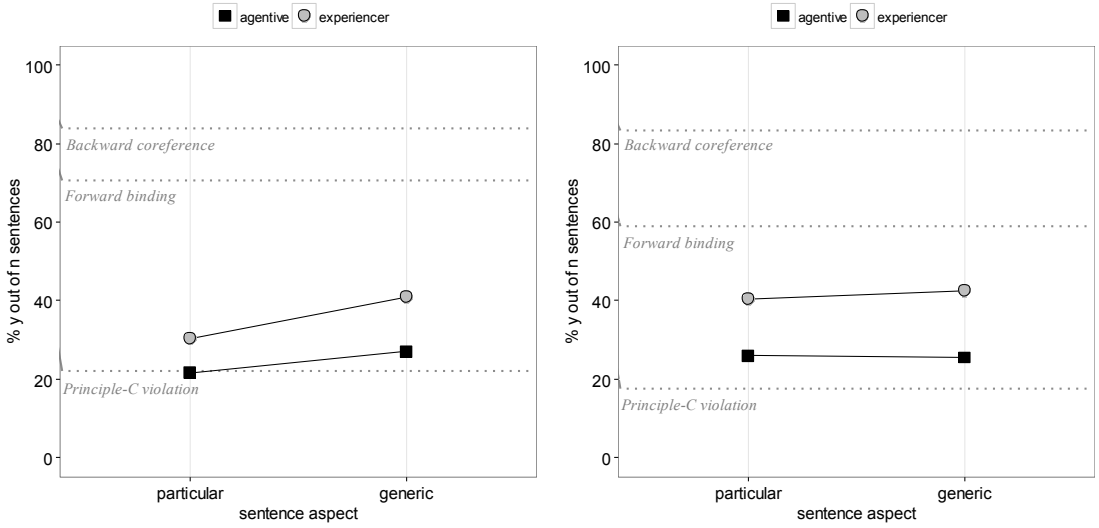
3.2.4. Results

The obtained frequencies of positive and negative choices of a BB reading are presented in Table 3.5. There are no missing values, i.e., 408 observations for each condition were collected in both data sets.

Table 3.5.: Frequencies of yes/no choices of German BB

		EO structures				AG structures				Total	
		particular		generic		particular		generic			
		n	%	n	%	n	%	n	%	n	%
Accusative	yes	*122*	30	*164*	40	*88*	22	*109*	27	*483*	30
	no	*286*	70	*244*	60	*320*	78	*299*	73	*1149*	70
Dative	yes	*165*	40	*173*	42	*106*	26	*104*	25	*548*	34
	no	*243*	60	*235*	58	*302*	73	*304*	75	*1084*	66

Figure 3.2 provides a visualization of the proportions of *yes*-choices for both data sets. Furthermore, it indicates the mean values obtained for the control structures. The filler baselines (ex. 36 above) are the percentages of *yes*-choices out of 204 observations. Filler (a) Principle-C violation: accusative 22.1% (SE 2.9), dative 17.6% (SE 2.7) *yes*-choices;



(a) Accusative (b) Dative

Figure 3.2.: Proportions of *yes* choices in the ACC/DAT experiments

(b) Forward binding: accusative 70.6% (SE 3.2), dative 58.8% (SE 3.5) *yes*-choices; (c) Backward coreference: accusative 83.8% (SE 2.6), dative 83.3% (SE 2.6) *yes*-choices.

At first, let us look at differences between the two experiments, i.e., the role of case. In general, BB is more frequently accepted with a dative argument (average 34%) than with an accusative argument (average 30%; see Table 3.5, total). Furthermore, in both experiments (dative and accusative), BB is more frequently accepted with experiencer structures (average 38%) than with agentive structures (average 25%). The effect of SENTENCE ASPECT (particular vs. generic) depends on case, as it only appears in the accusative results.

In the accusative experiment, particular agentive structures display the lowest acceptability proportion (22%); genericity raises it to 27%. Genericity has a greater impact on experiencer structures where it raises the proportions from 30% to 40% *yes*-choices. Thus, experiencer structures, as well as generic structures, increase the positive judgments of BB for accusative items, with VERB CLASS having a greater influence than SENTENCE ASPECT.

The dative data reveal that the choice of BB is only slightly higher with the generic experiencer items than with the particular ones (40% vs. 42%). With particular and generic agentive structures, *yes*-choices of BB show a small difference in the inverse direction (26% particular vs. 25% generic). Consequently, the dative results suggest that only VERB CLASS has a clear positive effect on the acceptability of BB, whereas the

effect of SENTENCE ASPECT is hardly visible at all.

The experimental data were fitted with generalized linear mixed-effects models, based on a backwards selection procedure starting from the maximal model (as proposed in Barr et al. 2013). In both experiments, the random-effects model with the maximal fit contains a by-subjects random intercept and a by-subjects random slope with VERB CLASS, while the by-items random intercept could be removed without a significant loss of information (in terms of a chi-square test of the difference between deviances). This result reflects the fact that the by-subjects variance is greater than the by-items variance in both experiments (accusative experiment: $s^2_{subjects} = 7.1$; $s^2_{item} = .01$; dative experiment: $s^2_{subjects} = 3.1$; $s^2_{items} < .001$). Examining the by-subjects random slopes, we found that the converging model with the best fit contains a random slope with VERB CLASS in both experiments (the comparison between the single intercept models and the models including a random slope is significant: accusative, $\chi^2(2) = 57.2$; $p < .001$; dative, $\chi^2(2) = 18.3$; $p<.001$). Hence, in both experiments, we consider models with the same random-effect structure, i.e., a by-subjects random intercept and a by-subjects random slope with VERB CLASS.

The descriptive data in Figure 3.2 shows that the effect of VERB CLASS is larger than the effect of SENTENCE ASPECT in both experiments. The odds (p(yes)/(1–p(yes))) of accepting BB with experiencer verbs is 1.7 times greater than the corresponding odds with agentive verbs in the accusative experiment, and 2.1 times greater in the dative experiment; the odds of accepting BB in the generic aspect is 1.4 times greater than the corresponding odds in the particular aspect in the accusative, and only 1.03 times greater in dative. The descriptive data suggest a slight interaction effect in the accusative experiment. The statistic analysis reveals that removing the interaction between VERB CLASS and SENTENCE ASPECT leads to a better fit (in terms of the AIC values) without significant loss of information (in terms of the χ^2 value of the difference between deviances). The maximal fit is reached by a model including two main effects in the accusative experiment (difference to the deviances of models with a single main effect: $\chi^2(1)=20.8$, $p<.001$ for SUBJECTS:VERB CLASS; $\chi^2(1)=25.4$, $p<.001$ for SENTENCE ASPECT) and a model only including a main effect of SENTENCE ASPECT in the dative experiment (difference to the deviance of a model without fixed effects: $\chi^2(1)=29.4$, $p<.001$). The parameters of the fixed-effects of the models with the best fit are given in Table 3.6.

The data reveal a robust effect of VERB CLASS in both cases. The effect of SENTENCE ASPECT depends on case, because it was only obtained with accusative case. Furthermore, the data indicates a difference between accusative and dative case. The present studies

Table 3.6.: Mixed effect regression results of the ACC/DAT experiments (Study II)

	Fixed factor	Estimate	$\chi^2(1)$	p	(>|z|)
Accusative	Intercept	−3.58	.55	−6.56	< .001
	VERB CLASS (experiencer)	1.83	.45	4.05	< .001
	SENTENCE ASPECT (generic)	.84	.17	5.06	< .001
Dative	Intercept	−1.81	.26	−6.87	< .001
	VERB CLASS (experiencer)	1.22	.22	5.48	< .001

were not designed to test hypotheses for the difference between accusative and dative as the two cases were examined in different experiments, i.e., with different speakers and different items. However, a difference in the obtained data can be observed and it is worth testing whether this difference is a significant finding or may be due to chance. For this purpose, generalized linear mixed-effects model on the data in the particular aspect condition were fitted, since this is the exact subset of data in which hypotheses with respect to verb type or case directly apply (the generic aspect may involve the additional effects of illusory binding). The examined dataset involves two fixed effects: VERB CLASS (experiencer, agentive) and CASE (dative, accusative). The data comes from two different experiments, i.e., the variation Within Subjects and Within Items can be observed for VERB CLASS but not for CASE. Consequently, the maximal random-effects model that was considered contained the random slopes of subjects/items with VERB CLASS (and not so with CASE). After model reduction, the maximal fit is reached by a model including a random intercept for SUBJECTS, the random slope SUBJECTS and VERB CLASS and two fixed main effects (no interaction effect): the difference between deviances of a model with two main effects and a model with a single main effect is significant for CASE ($\chi^2(1)= 5.94$, $p<.05$) and for VERB CLASS ($\chi^2(1)= 15.8$, $p<.001$). The parameters of the model that reaches the best fit are listed in Table 3.7. This result confirms that BB is more acceptable with dative case than with accusative case across verb classes.

Table 3.7.: Mixed effect regression results for particular structures of ACC & DAT data

Fixed factor	Estimate	SE	z	p (>|z|)
Intercept	−2.76	.36	−7.54	< .001
CASE (dative)	.94	.39	2.41	< .05
VERB CLASS (generic)	1.06	.26	4.03	< .001

3.2.5. Discussion

The effects of VERB CLASS and SENTENCE ASPECT are in line with the expectations in (37) and Table 3.4. Experiential VERB CLASS significantly increases the acceptability of BB structures both with accusative and dative case, while SENTENCE ASPECT has significant impact only with accusative case. The experimental results did not show an interaction between the two factors VERB CLASS and SENTENCE ASPECT. Rather, they showed cumulative main effects of the factors with accusative verbs and no significant effect of SENTENCE ASPECT with dative verbs. The relevance of this result for the present research question is straightforward: the acceptability of BB is a genuine effect of (accusative/dative) experiencer-object verbs not reducible to effects of SENTENCE ASPECT. This conclusion is opposed to approaches declining that BB effects are related to psych verbs (e.g. Bouchard 1995, Arad 1998b) or restrict subject-like properties to dative verbs (e.g. Wegener 1998; Fanselow 2000, Fanselow 2003). Two main aspects of the findings will be discussed in more detail: *(i)* the difference between dative and accusative results, and *(ii)* the generally low level of acceptability in the obtained data.

A comparison between experiments shows that the likelihood of BB increases with the dative (see Table 3.7). The question here is where the effect of case comes from. Comparing the data points in Table 3.5 reveals that the largest difference between the two cases lies in the proportions of particular experiencer structures (30% *yes*-choices for accusative and 40% *yes*-choices for dative verbs). The further proportions are similar in both experiments. Accusative and dative experiencer verbs display differences in their aspectual potential. While accusative experiencer verbs may have stative and eventive readings, dative experiencer verbs typically have only a stative interpretation. We speculate that exactly this property of the dative experiencer verbs is crucial for the result: the stativity of these verbs supports the acceptability of BB to the effect that the generic SENTENCE ASPECT does not have any additive effect. In contrast, the accusative experiencer structures are potentially interpreted as eventive and thus, provide the potential for an additive effect of the generic SENTENCE ASPECT, which would result in illusory binding, (see Section 3.2.2). This is exactly what the empirical findings show: the effect of SENTENCE ASPECT was confirmed in the accusative experiment (see Table 3.6), while the dative experiment did not provide evidence for an effect of SENTENCE ASPECT.

Another issue is the overall acceptability of BB in our data: the percentage of *yes*-choices (in all conditions) is 30% for the accusative experiment and 34% percent for the dative experiment. In other words, the speakers rejected BB in the majority of their

reactions. In a strict empirical view, the only interpretable facts are the differences in the conditional probability of a *yes*-choice under the treatments at issue. The results of an experimental study cannot directly show whether BB is grammatical or not; they show that VERB CLASS has a genuine influence on the acceptability of BB that is not due to chance. Hence, this finding demands a linguistic interpretation – independently of the level of the judgments. As the thematic variation of the subject was controlled, and this effect is not reducible to variations of SENTENCE ASPECT, it confirms the idea that EO psych verbs have exceptional binding properties.

The results of the control fillers may contribute to the interpretation of the levels of the obtained percentages. The fillers establish a clear contrast between configurations that exclude coindexing, such as the Principle-C violation (accusative 22.1%; dative 17.6%), and configurations that allow for coindexing, i.e., forward binding (accusative 70.6%; dative 58.8%) and backward coreference (accusative 83.8%; dative 83.3%). The acceptability levels of these phenomena are similar in both experiments. The main difference lies in the acceptability level of the forward binding, which is probably due to the difference of the examined structures: While the accusative structures featured a nominative QP as a binder (36c), the dative forward binding structures featured a (preposed) dative QP while the anaphor was part of either the passive agent PP (36d) or the nominative NP (36e). Backward coreference and forward binding are considered as fully grammatical in the literature. The observed difference between these structures can be attributed to the fact that the processing of variable binding is semantically more demanding than the processing of coreference.

Turning to the comparison with the target results, it can be observed that the judgments for agentive verbs, which are not expected to allow for BB, are at a similar level with the judgments of the Principle-C violations. The effects of VERB CLASS (experiencer) and SENTENCE ASPECT (generic) are added to this level of acceptability. However, even the highest acceptability level, which is reached with the dative EO verbs in the generic reading (42%), is considerably below the acceptability of the forward binding controls in the same sample (58.8%). This is an interesting contrast, but it would be empirically unjustifiable to conclude that this result reflects a difference in grammaticality. Note that also the contrast between backward coreference and forward binding does not reflect a difference in the grammaticality of these structures.

In general, the comparatively low level of acceptability with BB can plausibly be attributed to the accumulation of processing difficulties stemming from a backward dependency in addition to variable binding. Furthermore, it is clear that the preferred

reading of the examined structures is not the coindexed reading, but a reading with a contextual antecedent. Although the participants were instructed to judge the possibility of the coindexed reading, we cannot assess to what extent they are influenced by their preferences during the spontaneous interpretations of the target sentences. Therefore, the fact that the significant contrast between the verb classes is located between clearly ungrammatical structures and presumed well-formed structures could be due to degradation triggered independently from our hypotheses.

In sum, the reported facts show that the acceptability of the coindexed structures involves gradience influenced by a large set of factors (see Featherston & Sternefeld 2003 for an empirical study on the sources of gradience with reflexive structures). The present experiment was designed to test whether VERB CLASS has an effect on BB in German and whether this effect is independent from the effect of SENTENCE ASPECT, which may influence the interpretation of variable binding. The confirmation of the main effect of VERB CLASS under the controlled conditions of this study indicates that there is a significant difference in the examined verb groups. This difference cannot be traced back to further intervening factors.

3.2.6. Section summary

In the present chapter I pursue the empirical investigation of psych properties in German. The previous section has already confirmed that flexible argument order is a psych effect for German accusative and dative EO verbs. The present section discussed and tested whether Backward Binding is a special property of German EO verbs. A preliminary discussion revealed which factors have to be considered and controlled for. According to the findings, picture-NPs and genericity need special attention as both induce illusory binding. While the former has been excluded as a potential anaphor, the latter has been included as a factor of interest. The results of the experiments confirmed a significant effect of EO verbs for the acceptability of Backward Binding structures, confirming it as a special psych property. For further research I propose to test Backward Binding in other languages as well as with other verb classes, specifically, because causative verbs have been argued to exhibit Backward Binding too.

Study II: Exceptional Backward Binding with EO verbs

i. Backward Binding (BB; here, a lack of WCO) as a psych property can be confirmed for German accusative and dative EO verbs: experiencer objects allow

to bind anaphors embedded in the subject more easily compared to non-EO verbs.

ii. The difference in acceptability between accusative and dative EO verbs confirms the observations in the literature, namely, that EO_{DAT} verbs generally show stronger psych effects compared to EO_{ACC} verbs.

iii. Independent from EO verbs, generic sentence aspect can license illusory BB. The combination of genericity and EO verb occurrence show the highest acceptability rate of all BB structures.

iv. The acceptability of the presented BB structures is very low in general, which can be traced back to a general unacceptability of backward dependencies and the possible interpretation difficulties associated with them.

3.3. Summary and conclusion of Chapter 3

The present chapter focused on the general empirical problem associated with the special status of EO verbs, namely, that singular examples were carried further through the literature, which gives us a rather weak basis for strong assumptions about the basic structure of a large verb class as well as about the functionalities of linguistic interface systems. It was tested whether the predicted behavior of EO structures sustain under multiplication of test structures which were created under carefully controlled conditions and with a full factorial design. The phenomena under investigation were flexible argument ordering and exceptional Backward Binding. The goal was to present experimental studies testing these alleged psych properties in German.

The aim of Study I in Section 3.1 was to collect precise estimates of flexible word order effects, which covers the observation that EO verbs allow for a more flexible argument ordering. Two forced-choice experiments have been conducted examining the impact of verb class and context on the fronting of dative and accusative experiencer and non-experiencer constituents. The core finding of the experimental studies is that, in neutral contexts, both dative and accusative EO structures show a solid tendency to license an OS order in contrast to non-experiential verbs. These results are taken as evidence for flexible argument order of EO structures in German. As for the different case mark-

ings, a large difference has been observed between dative and accusative experiencers, such that the preference for OS is stronger in the former case than in the latter. This points towards analyses that assume structural differences between EO_{ACC} and EO_{DAT}, i.e., with dative experiencers having a subject-like status and accusative experiencers being rather object-like. There were two aspects that complicate the picture. First, the dative study also tested high-argument datives (unintentional causers) which exhibited an even stronger OS preference than EO_{DAT} structures. If we assume that this is their natural order, the subject-like status of experiencer datives is challenged. Moreover, the constructions that were used to front experiencer arguments were also shown to be sensitive to contexts that topicalize lower arguments. This applies to accusative experiencers. An additive effect of contextual licensing did not appear in configurations in which the experiencer is a higher argument. This finding is in line with the hypothesis stating that the OS orders with EO accusative EO verbs result at least to some extent from the discourse preference to topicalize experiencers – without any syntactic assumptions about their position in the hierarchical structure.

The aim of Study II in Section 3.2 was to provide evidence for the licensing of Backward Binding in German with special reference to EO verbs. The theoretical discussion at the beginning revealed that the established BB data should be treated with caution, mainly for two reasons. First, the depicted unclear status of BB as a psych effect emerges due to a small amount of examples potentially influenced by ambiguities that arise with accusative EO verbs. By making use of Reinhart's subject matter/causer distinction for accusative EO verbs, we controlled for this source of variation and provided a representative set of structures as a proper basis for testing BB. Second, intuitions about BB are at risk of being affected by factors that lead to illusory binding, rather than proper binding. Judgments of variable binding may be influenced by habitual interpretations, as they demonstrably avoid WCO violations. Thus, in the experimental studies, we defined the basis for a proper binding configuration and implemented two acceptability studies with the same design, for accusative and for dative EO structures, respectively. The core finding of the experimental studies is that both dative and accusative EO structures license proper BB to a significantly higher degree than agentive structures with dative and accusative objects, respectively. Furthermore, the experimental results suggest a stronger licensing power of BB for dative experiencers, in contrast to accusative experiencers, due to the unequivocally stative nature of the dative EO verbs. These findings substantiate the exceptional nature of EO verbs as compared to agentive verbs, which is stated in the literature. Furthermore, the validity of the designed

test structures, notably the influence of the factor SENTENCE ASPECT is supported by an independent effect of genericity within the accusative results. This shows that generic operators may trigger an illusory binding effect. However, since VERB CLASS has a main effect in both experiments, we conclude that BB is a genuine psych effect in German.

As for the scope of the thesis, the studies confirmed the subject-like/less object-like behavior of experiencer objects: two of the special properties exhibited by EO verbs can be verified for German. The non-experiential verbs which have been included and served as comparative class are two place action verbs (e.g. *hug*, *call*, *criticize*) and causative (e.g. *rescue*, *heal*, *improve*) verbs with inanimate subjects.

Alongside the quantitative support for the special status of EO verbs, the experiments provided additional insights with respect to potential associated and/or intervening factors, e.g, the role of context licensing for argument ordering or the role of generic aspect when it comes to binding issues. Furthermore, the studies serve as templates for future studies which may include more finer grained distinctions, as, for example, the manipulation of further thematic and aspectual features. After the experimental confirmation of psych properties in the present chapter, the next chapter will take a look closer at the properties of special stative EO structures in order to approach the nature of EO structures and the source of psych properties.

4. The special status of EO structures and their stimuli

The considerations in Chapter 2 and the experimental evidence in Chapter 3 in particular, manifest the view that we should give preference to psych verb theories that incorporate specific assumptions about the derivation of psych properties. One key observation was that only a particular interpretation of EO verbs licenses psych properties, i.e., stative EO structures. This reading is often presented with inanimate stimulus subjects in order to rule out a potential agentive reading. Recall the contrast in (1).

(1) a. The neighbor frightens Laura. EVENTIVE/STATIVE
b. The behavior frightens Laura. STATIVE-ONLY

The structure in (1a) is ambiguous between an eventive (agentive/causative) and a stative reading, depending on the interpretation of the stimulus as an individual or some state of affairs. The sentence in (1b) can only be understood as a stative non-agentive eventuality. Non-stative EO structures, which evidently lack psych properties, have mostly been analyzed in parallel to canonical action verbs or causative verbs. Recall, for example, that EO structures but not agentive structures license Backward Binding. This is shown once again in (2).

(2) a. * His_i doctor visited every patient_i. AGENTIVE
b. His_i health worries every patient_i. STATIVE
(Reinhart 2003: 256)

The variable (*his*) embedded in the subject should not be bound by the quantificational NP (*every patient*) in the object position as the relevant structural relation is not provided. With stative EO verbs, however, this seems to be possible. Section 3.2 provided experimental evidence for this observation in German.

The existence of a number of psych properties across languages gave rise to the idea that EO verbs in their stative use have a special status when it comes to established rules

of grammar. This means that, for the derivation of psych properties, one needs to set apart stative EO structures from other transitive structures, as they have the relevant impact on linguistic models and approaches. In fact, it is crucial for either account on EO verbs that there appears to be only a fine line between different EO verb interpretations. This will be the main topic of the present chapter. Note that I will primarily concentrate on accusative EO verbs, which have always been controversial due to their proximity to canonical transitive verbs.

In Section 4.1, I take a closer look at the conditions of the different EO verb interpretations. In order to present the stative, eventive and agentive readings in more detail, I make use of the distinctive features provided by Arad (1998a), i.e., *agentivity* and *change of state*. Furthermore, I discuss the role of the stimulus arguments with respect to their potential referents and their relation to the experiencer. For example, stimuli of stative EO structures sometimes allow for an indirect relation with the experiencer, which casts doubts on causative analyses for this structure type. Compare the examples in (3).

(3) a. The landslide yesterday killed Laura (*when she went to bed today).

b. The landslide yesterday annoyed/worried/delighted Laura (when she went to bed today).

Subsequently, in Section 4.2, I point to a finer-grained distinction within the class of stative EO verbs which is made based on varying selectional preferences with respect to the stimulus argument. This is illustrated in (4).

(4) a. John's statement delighted/bored Laura.

b. The fact that John gave a statement delighted/?? bored Laura.

Both EO verbs *delight* and *bore* exhibit stative structures and are therefore expected to hold psych properties. Nevertheless, the examples show that the stimulus *John's statement* is a nominal which may stand for different types of referents, i.e., factive and non-factive ones, and while *delight* targets *the fact that John gave a statement*, the EO verb *bore* appears to be less compatible with such a paraphrase. In Section 4.3, I provide empirical support for such a distinction with a set of properties that differentiate possible stimulus types. Take (5), for example, which suggests that, in German, the stimulus selection is associated with the selection of a certain lexical type of PP.

(5) a. Laura ist erfreut *von seinem Vortrag/ über seinen Vortrag.
Laura is delighted by his talk about his talk

b. Laura ist gelangweilt von seinem Vortrag/ *über seinen Vortrag.
Laura is bored by his talk about his talk

In Section 4.4, I discuss what the stimuli of stative EO structures have in common: all the structures involve rather abstract stimulus referents and require the experiencer's awareness. In Section 4.5, I summarize the findings.

4.1. Psych verb ambiguities

A highly relevant observation regarding the Experiencer Object Problem presented in Chapter 2 is that psych properties can only be observed for EO verbs under a stative interpretation (cf. Arad 1998a, Landau 2010). In order to elaborate the different readings as a basis for further discussions, I go back to Arad (1998a)'s distinction of agentive, eventive and stative EO structures. One and the same verb potentially licenses all three patterns. The paraphrases in (7), for example, bring out the different interpretation options for the EO verb *frighten* in (6).

(6) Mary frightened John.

(7) a. The neighbor deliberately frightened Laura. AGENTIVE EO
b. The neighbor frightened Laura accidentally. EVENTIVE EO
c. The neighbor's behavior frightened Laura a little bit. STATIVE EO

Furthermore, most approaches on stative EO verbs assume that their lexical-semantic structure is more complex than that of pure states, but it also deviates from prototypical causative semantics. Examples for the respective classes are given in (8).

(8) a. The music delighted Laura. EO VERB
b. Laura liked the music. STATIVE VERB
c. The music awoke Laura. CAUSATIVE VERB

It has been shown before in Section 2.2.2 that existing approaches on the structure of stative EO verbs deal differently with their obscure meaning and the involvement of causative semantics. Either causation is not seen as part of their lexical meaning or EO verbs encode some type of non-prototypical causation, e.g., internal stative causation. This unclear status with respect to causation will be taken up again in the following subsections. It will be discussed in light of the different EO structure types and the stimulus types which are associated with each of them. I will argue for the view that

stative EO verbs which select proposition-like stimuli indeed do not fall under prototypical causation.

As a final point, an interesting case confirming the special status of stative EO structures is that this pattern is very productive and also occurs with verbs that do not necessarily have a predominant psych reading. Consider the examples in (9).

(9) Meaning shifts

a. The man killed him. NON-PSYCH

b. The joke killed him. PSYCH

In the following sections, I recapitulate the properties of the different EO structures starting with the stative EO use in Section 4.1.1, followed by the eventive and agentive use in Sections 4.1.2 and 4.1.3. Finally, I take up the observation of EO uses of non-psych verbs in Section 4.1.4.

4.1.1. Stative EO structures

The stative reading is the prototypical reading of EO verbs and it is arguably the one that projects psych properties. The set of structures in (10) contains some more examples to help provide a better understanding of the reading.[1]

(10) a. John's haircut annoys Nina.

b. John's behaviour/nuclear war frightened Nina.

c. This problem concerned Nina.

d. Blood sausage disgusts Nina.
(Arad 1998a: 4)

Arad (1998a) distinguishes the different uses of EO verbs with the help of two features, i.e., the presence of an agent and the encoding of a change of state within the object individual. The stative EO interpretation lacks both, which means that there is no individual that voluntarily acts on the experiencer, and there is no change of the experiencer's state from 'not-being V' to 'being V'. Instead, stative EO structures denote

[1]Note that the structures given in (10b) with the stimulus *nuclear war* and (10d) only have a habitual interpretation. Arad (1998a) mentions that these readings are not the only possibilities but a very easy way to get true psych interpretations. However, this factor should stay out of the semantic evaluation for now, as it distorts the access to the nature of true psych structures (cf. Chapter 3.2).

the eventuation of a mental or emotional state of an experiencer which is somehow related to or pointed towards a stimulus.

The semantic characterizations of stative EO structures often focus on the time course and the potential causal relation between the stimulus and the experiencer's state. In the following paragraphs, I will evaluate whether the time course encoded in EO structures and the type of stimulus they select are consistent with the concept of prototypical causation.

Prototypical causation

The relevance and nature of linguistic causation is subject of an ongoing debate (see, e.g., Neeleman & van de Koot 2012 and the references therein). Nevertheless, in order to determine whether the relation of the stimulus and the experiencer in stative EO structures corresponds to some concept of causation, I make use of two very general and widely accepted conditions for prototypical causation, which are formulated in (11).[2]

(11) a. Prototypical causation is a relation between a causing eventuality and a caused eventuality.

b. With prototypical causation the causing eventuality and the caused eventuality must be spatiotemporal proximate.

The conditions concern two aspects of the linguistic structure: first, what kind of referents are related, and second, what the temporal relation between them is in terms of precedence and directness. Condition (11b) is inspired by Vecchiato (2011)'s characterization of direct causation, which says that there is immediacy between two causally related eventualities in the spatial and/or temporal dimension. In the following, I will evaluate the conditions on prototypical causation for stative EO verbs with regard to the time course and the nature of the stimulus.

[2] According to Lewis (1973), causation as a general, not necessarily linguistic concept is counterfactual, which roughly means that the causing eventuality cannot have occurred if the caused eventuality did not occur. I will not discuss this aspect here, but I assume that this condition is indeed met by EO structures, which is the result of the fact that stimuli and experiencers are related through a causal chain (Croft 1993). I also assume that the general concept of causation does not necessarily go hand in hand with the linguistic representation of causation, i.e., that not every aspect associated with causation necessarily lead to linguistic encoding of causation by operators or similar means.

Stative EO structures as causative states

Unsurprisingly, within the ontology of events, stative EO structures count as states. A basic property of states is that they do not "happen" in the sense that they no not have a moment of emergence. As a consequence, they cannot be a suitable answer for questions that target such a moment, e.g., *What happened?* This effect is illustrated in (12)

(12) What happened?
   a. # Her mother resembled Laura.
   b. The sudden landslide killed Laura.

In contrast to structures containing stative verbs (12a), canonical causative structures constitute a felicitous answer to the question (12b). Now, as shown in (13), stative EO structures are rather a poor response. Thus, in this respect, they behave like stative verbs.

(13) What happened?
   # The sudden landslide worried/fascinated/astonished Laura.

Going deeper into the ontology of referential properties of predicates, EO structures have been identified as so-called abstract or Kimian state expressions (Rothmayr 2009). Roughly speaking, in contrast to the spatio-temporal Davidsonian states (e.g. *wait* or *sleep*), they lack the spatial dimension.[3] I refer to Rothmayr (2009: 60-63) for evidence for this characterization of EO verbs.

Irrespective of their stative semantics, it has been argued that the lexical semantic structure of stative EO verbs is more complex as compared to other stative predicates.

[3]Davidson (1967) argues that structures contain arguments that represent the eventuality denoted by the core predicate. These event arguments (which includes reference to states) can be modified with adverbial temporal or spatial information. It is a matter of debate whether we need to make distinctions between different types of eventualities in order to explain the properties and behavior of different predicates. Irrespective of that, consider (i) for the relevant properties of Kimian states (Maienborn 2008).

(i) *Ontological properties of Kimian states*
   a. *K-states are not accessible to direct perception and have no location in space.*
   b. *K-states are accessible to (higher) cognitive operations.*
   c. *K-states can be located in time.*

In contrast to *resemble*-type verbs, stative EO verbs do not simply relate two individuals but involve eventualities, whereby the arguments stimulus and experiencer represent prominent participants of the respective eventualities. Thus, what EO structures may express is a causing and a caused eventuality, i.e., the perception of a stimulus and the experiencer's mental state. The presence of a result state in stative EO structures is indeed indicated by the availability of stative passives, in comparison with purely stative ES verbs (*love*-type). Consider the contrast in (14).

(14) a. Laura ist fasziniert/ irritiert/ überrascht von der Frage.
Laura is fascinated/ irritated/ surprised by the question

b. * Laura ist gehasst/ gemocht von ihrem Nachbarn.
Laura is hated liked by her neighbor

The examples illustrate that, for German EO verbs (14a), but not for ES verbs (14b), it is possible to target a result component with stative (or 'adjectival') passive formation.

As a last point, it has already been mentioned in Chapter 2 that researchers often assume a special relation between the sub-eventualities of EO structures. For example, instead of having subsequent stages in the fashion of canonical external causation, i.e. a trigger preceding a result, the stimulus being present and the mental state of the experiencer are concomitant states. The contrast is illustrated in Figure 4.1.

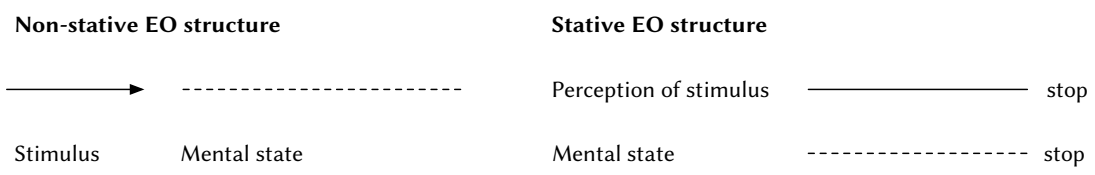


Figure 4.1.: The time course with non-stative and stative EO structures (Arad 1998a)

Accordingly, EO structures denote stative eventualities which consist of two event participants of two stative eventualities, e.g., the stimulus being perceived and the experiencer in a mental state (cf. Arad 1998a, Pylkkänen 2000, Biały 2005, Rothmayr 2009, among others). Since by now it is established that canonical causal relations may also involve states (cf. Kratzer 2000) or even tropes (Maienborn & Herdtfelder 2015), the fact that stative EO verbs relate two states is no obstacle for an analysis as prototypical causation – even more so given the simultaneity of the two stative eventualities which provides for the temporal proximity that is required for prototypical causation; recall (11b) above. See also Maienborn & Herdtfelder (2015) who argue for the relevance of proximity for causally related tropes.

In spite of the analysis of stative EO structures as expressing stative causation, it will be shown in the following that they do not always comply with the conditions on prototypical causation, which has to do with their ability to select abstract factive stimuli.

Non-causative stative EO structures

As shown before, Reinhart (2003) captures the stative EO interpretation by a distinct thematic specification of the stimulus argument. She convincingly shows that accusative EO structures may not only host a causer subject *x*, but also license so-called subject matter stimuli referring to *something about x*. The contrast is shown again in (15).

(15) a. The doctor's letter worried Lucie. CAUSER STIMULUS

b. Her health worried Lucie. SUBJECT MATTER STIMULUS
(Reinhart 2003: 267)

Recall that the structure with the subject matter stimulus in (15b), but not the causer-containing structure in (15a) is argued to exhibit psych properties such as Backward Binding. In general, Reinhart (2003)'s thematic analysis reflects the leading observation of this section well, namely that accusative EO structures with inanimate stimuli may have more than one possible interpretation. It is worth taking a look at what the nature of such a subject matter stimulus may be considering established ontologies for natural language referents. First, consider the example in (16).

(16) a. John's kissing Mary amazed Tina.

b. ?? The event of John's kissing Mary amazed Tina.
(Asher 1993: 210)

Following Asher (1993), some predicates show incompatibilities with event-denoting arguments. Given the example in (16), EO verbs appear to belong to this class. The evaluation of (16b) shows that an EO verb such as *amaze* is rather incompatible with eventive stimuli. In order to paraphrase event referents, they are explicitly introduced by a corresponding correlate NP.[4] The gerund phrase *John's kissing Mary* in (16a) leaves open what kind of referent is behind it and therefore does not trigger the same effect.

[4] Although the subject's interpretation as an event is supported by the corresponding NP, other interpretations are not entirely excluded. The paraphrase still allows for a *manner of event* interpretation. As we will see in Section 4.2, this kind of subject is indeed licensed by a subclass of stative EO verbs.

The assessment may become more clear if we compare the degree of compatibility in (16b) with that of predicates that fully license event-denoting referents, such as in (17).

(17) The event of John's kissing Mary was filmed.

For EO verbs it appears that instead of *event of* nominals *that*-clauses are the optimal paraphrase for a stimulus such as *John's kissing Mary*. Moreover, the clauses can be attached to fact-denoting heads. This is illustrated in (18).

(18) (The fact) that John kissed Mary astonished/irritated/shocked/surprised/annoyed Tina.

Note that accusative EO verbs share this property with dative EO verbs, as shown in (19). Example (20) confirms that in German, too, many EO verbs license *that*-clause subjects.

(19) a. ?? The event of John's kissing Mary appealed/mattered to Tina.

b. That John kissed Mary appealed/mattered to Tina.

(20) Dass Hans Maria geküsst hat erstaunte/ irritierte/ schockierte/ überraschte/
that Hans Maria kissed has astonished irritated shocked surprised
verärgerte/ erfreute/ entzückte/ erboste/ frustrierte/ (...) Laura.
annoyed pleased delighted angered frustrated (...) Laura

Sentential arguments introduced by *that* typically represent propositional entities. Propositions and facts are more abstract than events, as they do not have a temporal or spatial dimension (e.g., Asher 1993). As demonstrated in (21a) and (21b), facts and events show varying compatibility with temporal and local modification.

(21) a. The event/*fact happened yesterday.

b. The event/*fact happened in the garden.

As a consequence, given the first condition for canonical causation (recall ex. 11a above), these types of stative EO structures might not constitute instances of canonical causation, as they select non-eventualities as subjects. Note that there is evidence from corpus studies for the EO verbs' selection of more abstract and/or propositional stimuli in Pijpops & Speelman (2015), Engelberg (2014) and Levin & Grafmiller (2012).

The temporal relation between fact stimuli and the experiencer reinforces the impression that EO structures sometimes depart from canonical causation. To give an example, compare the structures in (22) which test the temporal proximity condition.

(22) a. * The sudden landslide yesterday killed Laura today.

b. The sudden landslide yesterday worried Laura today.

The temporal modifiers in the examples are used to set the involved eventualities apart by creating temporal distance. This should not be allowed if canonical causation is involved. Indeed, the often adduced lexical causative verb *kill* does not allow for such a distance, whereas the stimulus and the experiencer of stative EO structures can be separated that way.[5] Example (23) provides a possible context.

(23) That there had been a sudden landslide yesterday worried Laura when she went to bed today. Maybe there will be a second one during the night.

In general, it is expected that verbs of lexical causation, i.e. those that carry a cause operator in their lexical semantics, can only express direct causation (Fodor 1970, Bittner 1999, Wolff (2003), among others). Indirect causation can only be expressed by periphrastic forms with explicit cause predicates, e.g., *lead to* or *make*. This is illustrated by the contrast in (24).

(24) a. * John killed Bill on Sunday by stabbing him on Saturday.

b. John caused Bill to die on Sunday by stabbing him on Saturday.
(Fodor 1970: 433)

The considerations made above show that stative EO structures do not always express prototypical causation. Sometimes they allow for distant relations between the participants, which suggest that such cases do not contain a 'silent' cause predicate. The relevant structures are EO structures with abstract proposition-like stimuli that can be expressed by *that*-clauses.

Finally, I would like to briefly note that, alternatively, one could expand the class of causers by considering abstract referents such as facts or propositions as prototypical causers. The question, however, is whether these stimuli can be involved in prototypical causal relations at all. The issue as such forms a long-standing topic for philosophical, psychological and linguistic debates and it shows that stative EO structures constitute one case of linguistic phenomena for which the attribution of causal efficacy to abstract referents plays a crucial role. Based on evidence such as in (25), many authors assume

[5] Note that we would get a valid interpretation of (22a) if we use the psych-interpretation of *kill*, which, then, would mean something similar to (22b), only with a stronger emotion.

that facts and propositions are not or only barely capable of causal efficacy (Asher 1993, Peterson 1997 or Moltmann 2013).

(25) a. John's jump caused the table to break.
b. ?? The fact that John jumped caused the table to break.
(Moltmann 2016: ex. 15)

Alternatively, abstract proposition-like objects can be seen as participants of eventualities, just as individuals or other entities can be. This is possible, for example, when they are part of a mental representation event of some kind. The discussion in the following chapters will lead to a solution assuming that *that*-clauses in the psych domain can represent mental events, and as such they can take part in causal relations (e.g., *the idea that* cases). Nevertheless, it remains an option for many stative EO structures to express non-causal relations, namely, when they involve non-eventualities lacking causal efficacy and allow for a temporally indirect relation between the referents. As will be shown in the following subsection, eventive EO structures are more consistent with the requirement for the expression of canonical causation.

4.1.2. Eventive EO structures

Arad (1998a) defines eventive EO structures as follows: "The eventive reading is achieved when someone or something [is] causing some change of mental state in the experiencer, but without intending to. On this reading there is a change of state in the experiencer, but no intentional agent". Her examples are given in (26).

(26) a. Nina frightened Laura unintentionally/accidentally.
b. The explosion/the noise/the thunderstorm frightened Laura.

Following Arad (1998a), eventive EO structures do not involve individuals acting with intentions towards the state of an experiencer. As exemplified in (27), individual subjects in structures such as in (26a), in fact, represent event participants, which means that it is something that Nina did that causes an effect without her aiming at the relevant result state.

(27) By dropping the lid, Laura frightened Laura.

As suggested above, eventive EO structures in contrast to their stative counterparts fulfill the requirement for prototypical causation, i.e., the involvement of two temporally adjacent eventualities. Due to ambiguities that emerge with EO verbs and the

nominals involved one faces some complications when determining these properties. First, consider again the compatibility test in (28).

(28) The event of Laura dropping the lid frightened Laura.

The example shows that there are cases in which an EO verb is compatible with eventive stimuli (cf. ex. 16b above). This is because *frighten* belongs to the class of EO verbs which are lexically ambiguous so that they have an eventive reading which is compatible with event nominals. Stative-only EO verbs such as *worry* or *amaze* are incompatible with such a stimulus type.

As for the proximity condition of canonical causation, recall the illustration in Figure 4.1 above, which shows that in contrast to stative EO uses, eventive EO structures involve two subsequent components. In parallel to the causative verbs *kill* or *break* the causing eventuality must directly precede the result eventuality. It is rather difficult to validate this as the relevant EO verbs always have a stative reading which would always license temporal distance. In order to evaluate eventive EO structures such as in (26b) above with respect to causality, note that natural forces may also serve as prototypical causers. This is shown in (29). Also, they are naturally incapable of having intentionality.

(29) The storm broke the window.
(Schäfer 2012: ex. 3)

To sum up, eventive EO structures involve two temporally proximate events and therefore constitute a case of canonical causation. They can be subsumed in parallel to non-experiential lexical causatives such as *kill* or *break*. The distinctive feature in comparison to the agentive EO use is the lack of agency, and in contrast to stative causative EO verbs, eventive EO uses have dynamic semantics.

4.1.3. Agentive EO structures

According to Arad (1998a) agentive EO verbs select volitional agents and do not denote a change of state within the experiencer. Her example is repeated in (30).

(30) Nina frightened Laura deliberately/to make her go away.

Contrary to this account, Rothmayr (2009) assumes that agentive EO structures do involve a change of state of the object individual (see also Landau 2010). Under this view, they are parallel to canonical causative (or accomplishment) verbs like *kill* or

break. In lexical decomposition terms this means that, in contrast to eventive EO structures, agentive structures simply add a DO operator which introduces an agent. The corresponding lexical representation is given in (31).

(31) λy λx λs DO (x, CAUSE (x, BECOME (annoyed (y))))
(Rothmayr 2009: 65)

The reason why a complex lexical structure such as in (31) lends itself for agentive EO structures is that their conceptual structure involves two arguments. Therefore, each argument can potentially be associated with a sub-event, i.e., an agent performing an action and an experiencer that undergoes a change of state caused by the agent. Under this view, agentive EO structures comply with the definition of canonical causation, i.e., they relate two successive eventualities, which are structurally represented by the corresponding arguments.

So far, agentive EO structures have not been studied in detail. There is agreement as to the point that their structure is analogous to non-experiential agentive structures. However, whether agentive EO verbs involve reference to prototypical causation depends on the verb itself. Some agentive EO structures correspond to complex causative verbs (Rothmayr 2009's analysis), while others are transitive action verbs lacking a semantic result component (Arad 1998a's analysis). In German, for example, *erschrecken* ('frighten') but not *ärgern* ('annoy/tease') is indicating a result state. Consider examples (32) and (33).

(32) a. Der Nachbar erschreckte Laura mit Absicht.
'The neighbor frightened Laura on purpose.'

b. Der Nachbar ärgerte Laura, um sie loszuwerden.
'The neighbor annoyed Laura to get rid of her.'

(33) a. der enttäuschte Mann
the disappointed man

b. * der geärgerte Mann
the annoyed man
(Hirsch Submitted: ex. 20)

The examples show that both verbs can build agentive structures (32). However, as indicated by the availability of the participle, *erschrecken* ('frighten') contains a result state whereas *ärgern* ('annoy') does not. Therefore, the causative analysis cannot be applied to all EO verbs with an agentive reading (cf. Hirsch Submitted). I will now briefly comment on the lexical semantics of the latter option.

From a more general point of view, non-causative action verbs involving agents are often represented by intransitives such as *run* or *walk*. As argued in Rappaport Hovav & Levin (1998), verbs such as *sweep* or *wipe* conceptually require two arguments, i.e., a wiper or sweeper and an affected surface. The affected argument can usually be omitted, which is illustrated in (34). EO verbs differ in this respect, as confirmed in (35). The following judgments are also valid for German.

(34) Laura swept (the floor).

(35) The neighbor provoked/annoyed/surprised *(Laura).

Considering that, EO verbs do not fit the concept of the *sweep*-class. A suitable class of two-place agentive verbs, however, is transitive action verbs, e.g., *hug*, *visit* or *criticize*. As shown in (36), their objects, too, are obligatory surface arguments.

(36) Terry hugged/visited/criticized *(his mother).

They differ from canonical causative structures (*break*-type) with respect to lexical complexity, i.e., they are agentive transitives but are mono-eventive. With these properties, they appear to depart from established patterns of verbal meaning. Consider for example Levin (1999)'s distinction between different types of transitive verbs: *core-transitive verbs* are semantically defined as encoding the pattern 'agent act on and affect patient' (Levin 1999: 224) and they exhibit a high degree of transitivity on Hopper & Thompson (1980)'s transitivity scale. *Non-core transitive verbs* are more or less defined as not having the core properties of transitive verbs. Examples for this class are transitive stative verbs (*resemble*-type verbs) and experiencer subject verbs (*adore*, *hate* or *admire*). Similarly, interaction verbs with dative complements have "low semantic transitivity", e.g., *helfen* ('help'), *folgen* ('follow') (Blume 1998: 256). Talmy (2000) offers a similar type of distinction within the class of action verbs, i.e., verbs such as *kick* are *mono-eventive* whereas verbs like *smash* are bi-eventive, as they also involve a change of state ob the object.

In short, what agentive EO structures have in common and what they share with agentive verbs outside the psych domain is that they involve volitional agents. Among agentive EO structures there are bi- and mono-eventive ones. Bi-eventive structures have complex lexical structures and involve prototypical causation. In contrast to eventive EO structures, their agent acts intentionally towards a result. Simple agentive EO structures, on the other hand, do not involve causation, are mono-eventive and count as non-core transitive verbs.

4.1.4. Psych uses of non-psych verbs

In the cases of lexical-semantic ambiguity considered so far an experiencer, or emotive content, is implied in each of the variants of interpretation (e.g. with *frighten*). Hence, this can be seen as ambiguities within the psych domain. In some cases, however, the ambiguities leave this domain, meaning that the psych implications can only be found under the stative reading. Thus, in these cases, their meaning shifts from non-psych to psych.[6] The former case is illustrated in (37) and the latter in (38).

(37) EO verb

a. The policeman frightened the burglar deliberately. AGENTIVE PSYCH

b. The idea frightened the burglar. STATIVE PSYCH

(38) Shifting verb

a. The police man killed the burglar. AGENTIVE NON-PSYCH

b. The joke killed the burglar. STATIVE PSYCH

Several researchers have already recognized that non-psychological verbs may also have psychological readings (e.g. Van Voorst 1992 for English, Rouwet 1994 and Martin 2006 for French, and Fábregas & Marín 2015 for Spanish). The fact that this pattern is very productive is taken as evidence against lexicalist approaches or unaccusativity analyses of EO verbs, as multiple lexical entries of a verb would be required for a large and indefinite number of predicates (Fábregas & Marín 2015, Bouchard 1995, among others).

The examples below show that we find shifting verbs in German too. Example (39) contains a non-psych/psych version of a causative structure and example (40) illustrates the same shift for a non-causative action verb.[7] This corresponds to the two classes of agentive structures discussed in the previous subsection.

(39) Causative verb

[6] Martin (2007) also differentiates psych-domain-internal and -external polysemies.

[7] Further examples for psych/non-psych polysemous verbs in German are: *verzaubern* ('bewitch'), *packen* ('grasp/thrill'), *fesseln* ('capture/mesmerize'), *erschlagen* ('strike dead'/'overtax'), *überwältigen* ('defeat'/'dazzle'), *mitnehmen* ('take along'/'make feel low'), *berühren* ('touch/concern') or *treffen* ('meet/affect'). I assume that many of these verbs find their counterpart in other languages, as particular concepts seem to qualify for adaption to the abstract experiential domain. See, for example, Ruwet (1972) and Martin (2006) for samples of French polysemous verbs.

a. Der Chef hat die Unterlagen zerrissen. NON-PSYCH
'The boss tore the documents apart.'

b. Die Schuld hat den Chef zerrissen. PSYCH
'The guilt tore the boss apart.'

(40) Action verb

a. Der Bote bewegt das Paket ein bisschen. NON-PSYCH
'The deliveryman moves the parcel a little bit.'

b. Die Geschichte bewegt den Boten ein bisschen. PSYCH
'The story moves the deliveryman a little bit.'

The meaning shifts involve a change of scene from the physical (objective) to the psychological (subjective) world. In short, many verbs from the non-psych domain regularly build EO structures although they appear not to express emotional concepts.

Note that a concrete/abstract distinction would not be sufficient for capturing the non-psych/psych shift, as there are cases that point to a further step between the abstract and the experiential domain. Fábregas & Marín (2015), for example, distinguish *formal* and *conceptual* psych verbs. While the former show all the relevant formal properties that are attributed to genuine EO verbs, the latter verbs simply address a mental concept and do not belong to the class of EO verbs. The structures in (41) illustrate such a contrast for German.

(41) a. Die Krise beunruhigt Laura. FORMAL PSYCH VERB
'The crisis bothers Laura.'

b. Laura beleidigt Laura. CONCEPTUAL PSYCH VERB
'Laura humiliates Laura.'

In the following, I use three properties that correlate with the psych/non-psych distinctions: first, the availability of stative passives. Second, the compatibility with phrases indicating the experiencer's awareness, and finally, the ability to select factive stimuli.

Differentiating psych and non-psych structures

As for the distinctive power of passives with respect to psych and non-psych uses of verbs, compare the structures in (42).

(42) a. Die Unterlagen wurden/waren zerrissen. NON-PSYCH
'The documents were being/were torn apart.'

b. Der Chef *wurde/war zerrissen. PSYCH
'The boss was being/was torn apart.'

It shows that, in contrast to the non-psych version of the causative verb (42a), the corresponding EO verb does not license eventive passives (42b). As expected for verbs containing a result component (cf. Gehrke 2011), both license stative passives. Another contrast is given in (43).

(43) a. Das Paket wurde/*war ein bisschen bewegt. NON-PSYCH
'The parcel was being/was moved a little bit.'

b. Der Bote *wurde/war ein bisschen bewegt. PSYCH
'The deliveryman was being/was moved a little bit.'

Due to a lack of a result component, non-causative action or process verbs, as in (43a), do not build stative passives. Using the same verb as a psych verb, however, switches the passive licensing pattern, as shown by the judgments in (43b). Finally, and interestingly, there are verbs for which the psych use only exists in the passive form, and sometimes this passive form would be prohibited by the non-psych version of these verbs. Examples are given in (44).

(44) Das Publikum ist ziemlich bedient/ angefressen/ angefasst.
the audience is quite served nibbled-at touched
'The audience has had quite their fill/is quite miffed/is quite touched.'

A further feature that comes with EO verbs is the presence of a genuine experiencer. This can be tested by targeting awareness- or attitude-related adjuncts, as illustrated in (45).

(45) a. Man hat die Unterlagen des Chefs zerrissen, aber er merkte es nicht/es interessierte ihn nicht. NON-EXP
'The boss's documents were being/were torn apart, but he didn't realize it/he didn't care.'

b. Die Schuld hat den Chef zerrissen, #aber er merkte es nicht/ #aber es interessierte ihn nicht. EXP
'The boss was being/was torn apart, but he didn't realize it/he didn't care.'

If an experiencer is present, it should not be possible to deny her or his awareness or attitude. As shown in (45a) the non-psych structure allows for unawareness or indifference, while the psych-version of *zerreißen* ('tear apart') in (45b) selects a genuine

experiencer. Furthermore, the structure in (46) illustrates that conceptual psych verbs, which denote mental concepts without experiential implications, are indeed compatible with the object individual not knowing or caring about the expressed eventuality.

(46) Der Nachbar legt Laura herein/verarschte Laura, aber sie merkt es nicht/es ist ihr egal.
‘‘The neighbor fooled/made fun of Laura, but she didn’t realize it/she doesn’t care.’

Finally, the stimulus selection provides additional support for the contrast between conceptual and formal psych verbs. The examples in (47) display how conceptual psych verbs are incompatible with inanimate or propositional stimuli. As argued previously, both are characteristic stimuli of formal EO structures.

(47) a. * Der Strohhut verarschte Laura.
‘The straw hat fooled/made fun of Laura.’

b. * Dass sie einen Strohhut trug im Winter, verarschte Laura.
‘That she wore a straw hat in winter fooled/made fun of Laura.’

To sum up, it has been shown that we can use the passive licensing pattern, the awareness test and stimulus-type selection to isolate proper EO structures. In general, the discussion points to the fact that the stative EO pattern is productive and not restricted to predicates with obvious psych content. Hence, the distinction between psych-domain-internal and external polysemies is a purely descriptive one. The only difference between the types of polysemies is that the transfer of concepts from the physical to the mental domain is currently transparent for verbs such as *erschlagen* (‘strike/hit’) and *berühren* (‘touch’) but not for *erbosen* (‘incense’) or *ängstigen* (‘frighten’).

As a matter of fact, diachronic meaning shifts rather indicate that the availability of psych/non-psych interpretations of a verb may change over time rather than and being a categorical property of EO verbs. Klein & Kutscher (2005) show for German that most EO verbs are the result of a metaphorical change: “the vast majority of these verbs originated in verbs with physical readings and went through a stage of polysemy when the psych-verb reading emerged” (p. 26). To illustrate this, I briefly refer to two of their examples: first, the origins of the deadjectival *ängstigen* (‘frighten’) can be translated as “state of something being tight”. Thus, in its non-psych use, the verb probably denoted a process in which someone is physically affected, as in “put sb. in the state of being tight” (p. 31). A second example is *erschrecken* (‘scare’) which, in its non-psych use, meant “to make sb. jump” and by now only has a psych meaning.

As for the analysis of EO verbs, the originally concrete bases of EO verbs are sometimes taken to be the source of their accusative object marking (Klein & Kutscher 2005, Reinhart 2001), as the accusative case usually marks prototypically affected objects and is unexpected for experiencers. Nevertheless, since the diachronic perspective exceeds the scope of the present work on psych verbs, I refer the reader to Batllori Dillet (2012) (for Spanish), Klein & Kutscher (2005) and Wegener (1999) (for German), for details on the diachronic view on psych verbs. To put it roughly for the present purposes, it seems that the diachronic development of psych verbs mirrors the synchronic picture: objectifiable eventualities involving concrete entities that are related to the physical state or action of an individual shift to statements about abstract issues such as feelings and attitudes. Regarding the present section, it became apparent that stative EO structures with all their relevant properties exist irrespective of the potential concrete or abstract non-psych uses of the corresponding verb.

4.1.5. Section summary

The present chapter aims at determining the properties of stative EO verbs with a special focus on the type of stimulus they select. This is mainly motivated by the fact that stative EO structures exhibit psych properties and for locating and explaining them, their structure and meaning is not defined clearly enough. A first step towards a better understanding of stative EO structures in the present section was to isolate and characterize the relevant stative structure type from other possible EO interpretations and to evaluate EO structures with respect to their stimulus selection and the involvement of causation.

Using features such as the presence of an agent and the expression of a change of state three main interpretations of EO verbs can be distinguished: stative, eventive and agentive structures. Stative EO structures, traditionally, denote a relation between two concomitant states (i.e. stative causation), while eventive verbs relate two subsequent events (i.e. eventive causation). I presented two options for the semantics of agentive EO structures: mono-eventive transitive action verbs (*kick*-type) and bi-eventive accomplishments involving agents (*smash*-type). In general, it is widely agreed upon that eventive and agentive EO structures find their non-experiential counterparts in classes of regular action verbs or canonical causative verbs. Since both are not expected to display psych properties, these structures will not be considered further.

According to the role of causation in different EO structures, it has been presupposed that prototypical causation should involve temporally proximate eventualities.

On this basis, one can conclude that it is unambiguously expressed in eventive and in bi-eventive agentive EO structures. Although the most common analysis of stative EO structures is that they also denote prototypical causation but with two states involved, the fact that many EO verbs are compatible with clausal subjects and appear to select proposition-like stimuli raises some doubts about a causative analysis. This is because, in fact, such a stimulus is causally less efficacious and allows for a temporally distant relation to the experiencer's state. It has also been mentioned, however, that *that*-clauses or the respective nominalizations may also represent states of affairs that participate in mental events and, then again, are suitable for causative analyses. Thus, confirming previous reports of their heterogeneity, stative EO structures may not be covered by one single structure type when it comes to the involvement of causation.

Finally, the existence of synchronic and diachronic polysemies concerning the psych domain revealed that stative EO structures do not only contain established EO verbs (*frighten*-type) but may also be built by verbs that have an active use without emotive content (*kill*/*move*-type). Since one can assume that, under their EO interpretation, they exhibit psych properties as well, the study of psych verbs and exceptional EO behavior needs to include EO structures built by non-psych verbs.

In short, the referential properties of the stimulus and the possible distance between stimulus and experiencer indicate that stative EO structures do not necessarily constitute a case of prototypical causation, as they may involve non-eventualities that lack causal efficacy and allow for a temporally indirect relation between the referents. In the following sections, I proceed with elaborating the stative EO structure and shed some more light on the EO verb stimuli and the nature of the corresponding nominals.

Psych verbs ambiguities

i. EO verbs occur in various generalized patterns of verb meaning and only stative EO structures show psych properties. The aspectual characterizations of the patterns also interact with the involvement of causation.

ii. Agentive EO structures are either mono-eventive or bi-eventive action verbs, depending on the presence of a change of state. Eventive EO structures are causatives lacking a volitional agent. They denote direct external causation between two consecutive eventualities.

iii. Stative EO structures are defined as being non-agentive and non-eventive. It remains open whether they involve prototypical, linguistically represented causation. They are said to express causative states but sometimes involve propositional stimuli which points to non-causative analyses.

4.2. Types of stative EO structure stimuli

We know from observations in the literature and the experimental evidence in Chapter 3 that stative EO structures exhibit psych properties, which clearly sets them apart from other transitive verbs. The most common analysis from a lexical-semantic point of view is that stative EO verbs express causally related states. As it turned out in the previous section, the type of stimulus they select creates difficulties when it comes to their placement in the field of causation, that is, in fact, stative EO verbs may select more abstract, proposition-like stimuli which allow for a temporal distance to the experiencer's state of mind. Thus, this might be a relation for which causality is not represented linguistically.

In the present section, I move away from lexical-aspectual verb features, which have been studied in detail, and focus on the stimulus referent of stative EO structures. It will be shown that, in fact, one can identify at least two sub-types of stative EO structures based on the type of the stimulus the verbs select, i.e., there are structures that contain factive stimuli but also those involving non-factive stimuli, which rather refer to other aspects of entities or eventualities, e.g., qualities of something. Consider, for example, the varying compatibility with fact stimuli in (49).

(48) *John's statement* delighted/fascinated Laura.

(49) a. *The fact that John gave a statement* delighted Laura.
b. ?? *The fact that John gave a statement* fascinated Laura.

It appears that with *fascinate* the stimulus refers to some property of the statement rather than to the fact that John gave it. This kind of masking of stimulus subtypes in (48) is made possible through the underspecification of stimulus nominals. Typical examples for such effects in EO structures are provided in (50).

(50) a. *John* worried Laura.

b. *The pictures* depressed Laura.

c. *John's honesty/naiveté* fascinated Laura

d. *The kiss/hug* disgusted Laura.

e. *The question/statement* bothered Laura.

Among proper names and DPs in (50a) and (50b), stative EO verbs occur with nominalizations representing properties (50c), actions (50d) or propositions (50e). Thus, many EO structure examples in the literature make use of nominals that actually represent more complex stimuli. Placeholders such as *John* in (50a) do not reveal the nature of the larger entities that they represent, and nominalizations can be ambiguous.

In Section 4.2.1, I discuss the potential ambiguities of different relevant nominalizations, followed by a depiction of nominal underspecification in the EO domain in Section 4.2.2, which is going to support the assumption of different types of stimuli and stative EO structures.

4.2.1. Abstract objects and nominal underspecification

In many cases, nominals lack information about the true nature of their referent and their interpretation often depends on the context and the predicate they cooccur with. The examples in (51) illustrate how German deverbal *-ung*-nominalizations, e.g., *Absperrung* (from the verb *absperren*; off-block-INF 'cordon off'), can be interpreted as an event (51a), a result state (51b) or a result object (51c), which is brought to light by the corresponding predication that is made about it (cf. Ehrich & Rapp 2000, Scheffler 2005, Hamm & Kamp 2009, Dölling 2015).

(51) a. *Die Absperrung* wurde behindert. EVENT
'The cordoning off of the street was impeded.'

b. *Die Absperrung* wurde aufgehoben. RESULT STATE
'The blockade of the street was lifted.'

c. *Die Absperrung* wurde abgebaut. RESULT OBJECT
'The barrier on the street was disassembled.'

This is a case of ambiguous event nominalizations. As already argued in the previous chapter, stative EO structures, unlike their agentive or eventive-causative counterparts, involve non-individual and non-event stimuli. Therefore, in the following, I focus on nominalizations that may refer to objects apart from individuals, entities or events, i.e.

mostly facts and qualities. Before I turn to these issues, I will briefly introduce some of the relevant concepts.

Abstract object referents

A number of classifications of natural language referents differentiate concrete from more abstract entities as being possible natural language referents (e.g. Zucchi 1993, Asher 1993 or Moltmann 2013). An example classification is given in Figure 4.2. It

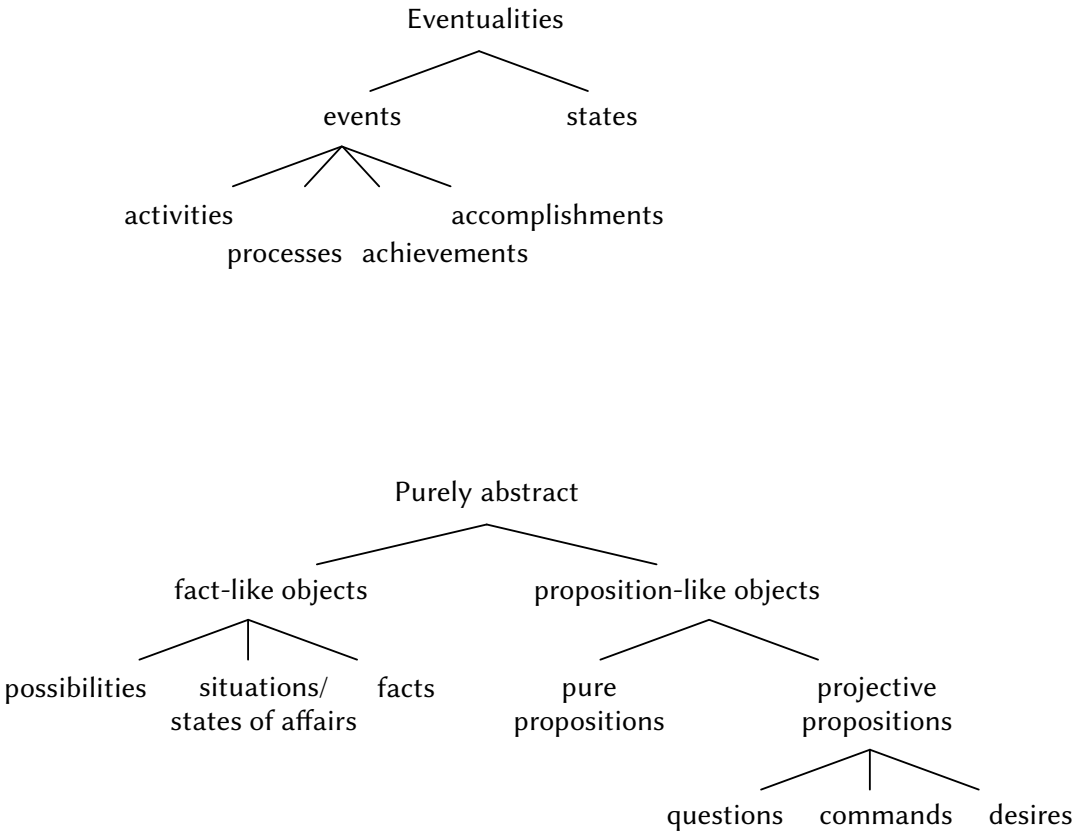


Figure 4.2.: Natural language ontology (Asher 1993)

shows that possible forms of abstract entities are propositions and facts, among others, and that the class of concrete eventualities consists of the typical aspectual-semantic verb classes, i.e., states and events, including activities, accomplishments and so forth.

The main argument for distinguishing eventive and non-eventive referents comes from compatibility tests with event-selecting predicates. In contrast to propositions or facts, events have a spatio-temporal location (Barwise & Perry 1983, among others) and

are therefore selected by predicates targeting these dimensions (cf. Vendler 1967). This is illustrated in (52).

(52) a. John's singing of the song at midnight on December 31, 1987 was slow/sudden/took a long time.

b. # The fact that John sang the song at midnight on December 31, 1987 was slow/sudden/took a long time.
(Zucchi 1993: 108)

In contrast to the paraphrased fact nominal in (52b), the ing_{of} gerundive in (52a) allows for an eventive interpretation and is therefore compatible with predicates of temporal location. A crucial signal of the presence of propositional and factive material is that the interpretation of a nominal can be context-dependent (cf. Zucchi 1993, Asher 1993). Consider the structures in (53).

(53) a. Oedipus is informed of the arrival of Jocasta.

b. Oedipus$_i$ is informed of the arrival of his$_i$ mother.
(Zucchi 1993: 193)

Even if one assumes that the arrival of Jocasta is the same event as the arrival of Oedipus' mother, both utterances can receive a truth value independent of each other, i.e., Oedipus may be informed of the arrival of Jocasta but not of his mother and vice versa. Therefore, the interpretation depends on the state of knowledge of Oedipus.

There is agreement that stimuli of stative EO structures do not denote individuals or events. Stative causative analyses of stative EO structures assume that they denote states instead. Another type of referent that might be involved in EO structures is qualities. In the discussion of natural language referents they are associated with properties or tropes (e.g. Levinson 1978, Moltmann 2004). Examples for nominals expressing qualities are *the apple's redness* and *Laura's beauty*. The contrast in (54) shows that there is reason to assume that qualities are distinct from eventualities such as states.[8]

(54) a. John described Mary's beauty.

b. ?? John described Mary's being beautiful.
(Moltmann 2006: 368)

[8]There appears to be evidence for a finer-grained distinction between tropes and kind of tropes on the one hand (see Moltmann 2004), and property tropes and quality tropes on the other hand (e.g. McNally & de Swart 2011 Villalba 2009, and Levinson 1978).

It appears that quality readings are compatible with predicates of description (54a), while state readings are not (54b), which has to do with the fact that states "do not care how the property manifests itself in the individual" (Moltmann 2013: 301). The contrast illustrates how we can describe *beauty* as a property, whereas the state of *being beautiful* simply exists or it does not exist. Moreover, as shown in (55), the quality of something can be modified or evaluated, but not the existence of a state.

(55) a. John's tiredness was extreme.
b. ?? John's being tired was extreme.
(Moltmann 2006: 369)

Thus, instantiated properties have a certain extension (55a), which is not possible for states (55b). Note also that the quality-dimension cannot be captured by the nominalization itself. Instead, it can be made explicit by paraphrases such as *the way that/how* or *the degree/extent*.

Recognizing that the discussions on the existence and nature of referent types are much more complex than shown here, I simply make use of the two rather abstract categories *fact* and *quality* assuming the following: fact nominals refer to the truthfulness or existence of eventualities and states of affairs, while quality nominals refer to the way of the manifestation or the extent of a property. In the following, I discuss a number of nominal ambiguities that concern the issue of EO verbs as they involve the reference to these objects.

Event/fact ambiguities

Nominals may be ambiguous as to whether they refer to an eventuality or a fact. To illustrate this, the structures in (56) contain the same nominal, but it receives different interpretations in each case.

(56) a. *The collapse of the stock market* was imminent/gradual. EVENT
b. *The collapse of the stock market* is a fact. FACT

The italicized nominal represents an event in (56a) and a fact in (56b). The respective interpretation is controlled by the corresponding type of predication, i.e., the predicates *imminent* or *gradual* select events rather than propositions or facts and *is a fact* controls for a factive interpretation.

As argued in Asher (1993), fact interpretations are the results of so called *abstract argument transformations* that nominals can undergo. These transformations change

the meaning of eventualities to abstract objects. In the case of facts, for example, an argument place for an abstract discourse referent is licensed by the determiner and added to the meaning of the derived nominal. The structure in (57), for example, shows the result of a transformation of the state *Mary is wise* into *the fact that Mary is wise*.

(57) The fact that Mary is wise reflects well on her teachers.
(Asher 1993: 174)

As Asher (1993) points out, the fact itself and not the associated state reflects well on Mary's teachers. Depending on the head noun of the complex nominal, eventualities may be transformed to facts, beliefs or possibilities, among other options. Note also that facts can occur in forms apart from nominalizations and *that*-clauses, namely, in accusative and possessive *-ing* gerunds, as in *Mary('s) hitting Laura*.

Fact/manner ambiguities

Event nominalizations can also exhibit ambiguities between facts and manners (e.g., Vendler 1968, Katz 2000, Mittwoch 2005). This is illustrated by example (58), together with the corresponding paraphrases in (59).

(58) John's performance of the song bothered Mary.
(Katz 2000: ex. 12)

(59) a. That John performed the song bothered Mary.
b. How John performed the song bothered Mary.

Indeed, in both cases Mary's bothering relates to *something about the performance*, but in (59b), Mary is bothered about the manner of John's performance of the song, whereas the subject nominal in (59a) represents the fact that John performed the song. The manner reading requires additional context information, i.e., what quality of the performance is bothersome.

The ambiguity in (59) is taken as evidence for the assumption that manners are a semantically distinct type of referent in the world, along with events, states, properties, facts and so forth (cf. Alexeyenko 2015). Their semantics is close to the paraphrase *the way (how)*, as illustrated by the parallel semantics of the structures in (60).

(60) a. John's carelessness in driving bothers Mary.
b. The careless way John drives bothers Mary.
(Alexeyenko 2015: 66)

Another argument for the autonomy of manners is that one can establish anaphoric relations to pronouns or pronominals adverbials, as shown in (61a) and (61b), respectively.

(61) a. On the highway John usually drives fast and recklessly. *It* scares Mary.
b. Mary spoke slowly and carefully. Her voice sounded very scary *this way*.
(Alexeyenko 2015: 66)

The use of EO verbs in the examples above already indicates that they seem to be good candidates for such environments.

State/abstract-object ambiguities

Another class of nominals that appears to have the potential to capture abstract property-like referents are deadjectival nominalizations. An example contrast is given in (62).

(62) a. John's honesty didn't last long.
b. John's honesty is well-known.
(Asher 1993: 162)

The subject in (62a) refers to the state of John being honest, an interpretation that is supported by the temporal dimension the predicate *last long* brings with it. In (62b), on the other hand, the nominal refers to a more abstract entity. While Asher (1993) analyzes the referents of the subject nominal in (62b) as propositions, Moltmann (2004) calls these specific types of nominals *tropes*.

Note that such property-derived nominals may also be ambiguous within the domain of abstract objects. In some cases, nominalizations based on adjectives can refer to a property *P* as well as to *the fact of having P*. Thus, the phrase *John's happiness* could refer to the *nature/extent of John's happiness* as well as to *the fact that John is happy* (Moltmann 2016).

In short, the section's line of argumentation is that the properties of stative EO structures are not only under the influence of ambiguities of the verb but of the stimulus nominals too. In accordance with this, it has been shown that nominalizations have considerable potential for ambiguities and they can represent referents which are more abstract than individuals, entities or eventualities. Crucial for the present purposes, there are facts which refer to the being or come-into-being of a particular state of affairs or eventuality and there are qualities – which I use as a collective term for manners,

tropes or properties – which represent the different ways or extents of how a property is instantiated in an entity or eventuality.

In the following, it will be argued that facts and qualities are licensed in stative EO structures. Relating facts and qualities to the EO meaning, one should keep in mind the paraphrases *(the fact) that sth. is/happened* and *(the way) (how) sth. is/happened* for the relevant interpretations.

4.2.2. Nominal underspecification in EO structures

Naturally, the selectional properties of predicates constrain the potential referents of nominals that represent their arguments. In the following, I argue that stative EO verbs lead the stimulus interpretations to certain aspects of eventualities or individuals, as discussed in the previous subsection. As a first step, recall the opacity facts taken from Zucchi (1993) in order to demonstrate the propositional nature of certain arguments (ex. 53 above). As illustrated in (63) with EO verbs, as well, the true value of the subject referent depends on the context or knowledge of the experiencer.

(63) a. The arrival of Jocasta surprised/annoyed/delighted Oedipus.
b. The arrival of his_i mother surprised/annoyed/delighted Oedipus_i.

The fact that the two structures do not entail each other, even if they denote the same event of arrival, indicates that the subject argument is propositional in nature, and not eventive.

That the stimuli of EO verbs are often propositional in nature has already been noticed before (e.g. Bott & Solstad 2014). More precisely, EO verbs belong to the class of factive verbs in the sense of Kiparsky & Kiparsky (1970), which means that they always imply the truth of the proposition contained in their complement. A logical consequence is that the factive presupposition must hold under negation of the main proposition. The relevant example is given in (64).

(64) a. It irritated/annoyed Laura that they won the game. → They won the game.
b. It did not irritate/annoy Laura that they won the game. → They won the game.

Indeed, only a very small number of EO verbs can take non-factive propositional subjects. In German, the only verb that comes to mind is *interessieren* ('interest'). Compare examples (65) and (66).

(65) a. Mich interessiert, ob sie das Spiel gewonnen haben.
'I am interested in whether they win the game.'

b. * Mich interessiert, dass sie das Spiel gewonnen haben.
'I am interested in that they win the game.'

(66) a. * Mich ärgert/wundert, ob sie das Spiel gewonnen haben.
'I am bothered/surprised whether they win the game.'

b. Mich ärgert/wundert, dass sie das Spiel gewonnen haben.
'I am annoyed/surprised that they win the game.'

In contrast to genuine factive EO verbs in (66), *interessieren* can embed questions, i.e., propositions which are unspecified for truth values.[9] See, furthermore, the contrast between (67) and (68).

(67) Der Ausgang des Spiels interessiert mich. Bitte verrate es mir.
'The result of the game interests me. Please tell me.'

(68) Der Ausgang des Spiels wundert/ärgert mich. #Bitte verrate es mir.
'The result of the game surprises/annoys me. Please tell me.'

The nominal *der Ausgang* ('the result') in (67) can be interpreted as proposition without any indication of truth, whereas the same nominal in (68) can only represent a fact. Only with *interessieren*, for example, would it be possible for the speaker to state that she or he does not know the result of the game.

As shown in (69) and (70), there are configurations of some sort, in which EO verbs can embed clauses which do not immediately indicate a certain truth value.

(69) Laura widert es an, wenn Blutwurst im Kühlschrank ist.
'Laura is disgusted/sickened, when there is blood sausage in the fridge.'

(70) Laura ärgert/wundert es, wenn sie das Spiel verlieren.
'Laura is bothered/surprised, when they lose the game.'

[9] Regarding (65b), Lisa Verhoeven pointed out that there is a context in which *interessieren* is compatible with facts. See (i) for an example. Note that, in such a case, it is natural that *dass* ('that') and *wie* ('how') are contrastively accented.

(i) *Mich interessiert nur, dass sie das Spiel gewonnen haben, nicht, wie sie es geschafft haben.*
'I am only interested in (the fact) that they won the game and not how they did it.'

It shows that, in its non-prospective use, *interessieren* looks like factive EO verbs.

However, these structures can only have generic or conditional interpretations, i.e., they do not denote particular relations between a stimulus and an experiencer, but rather, their interpretation is governed by a higher generic or modal operator, whereby the factive nature of the verb is unaffected.

Another relevant issue regarding nominal underspecification in EO structures is the fact/manner ambiguity. Example (59) above already implied that *bother*, being a prototypical EO verb, licenses fact as well as manner stimuli. In fact, many EO verbs allow for both interpretations. A similar example is given in (71) for German, with possible disambiguating responses in (72).

(71) *Der Kuss der Schauspieler* ärgerte/verwunderte/erboste/erstaunte die Regisseurin.
'The actors' kiss annoyed/surprised/incensed/astonished the director.'

(72) a. *Das* sollten sie lieber nicht tun.
'They should rather not do that.'
b. *So* sollten sie es eigentlich nicht machen.
'That's not how they actually should have done it.'

Without contextual information, the stimulus of the EO structure in (71) has at least two different interpretations: it is either the fact that the actors kissed or the manner of the kiss that the stimulus refers to. The manner interpretations, however, are still underlying facts, as the stimulus indeed refers to the fact that something happened in a certain manner, i.e., they are facts in which a manner or quality is embedded. A possible paraphrase for an embedded manner interpretation of *John's performance* from (58) is provided in (73). See example (74) for a paraphrase of the German example above.

(73) *The fact that John performed the song without his pants on* bothered Mary.

(74) *Die Tatsache, dass die Schauspieler sich nur zögerlich küssten*, ärgerte/verwunderte/erboste/erstaunte die Regisseurin.
'The fact that the actors were only hesitantly kissing each other annoyed/surprised/incensed/astonished the director.'

In such cases, the fact/manner ambiguity appears to be the result of varying complexity of factive or propositional stimuli. As for the manner reading, what about the stimulus is referred to must somehow be contextually salient.

Nevertheless, it seems that not all stative EO verbs select factive stimuli. To illustrate this, compare the structures in (75).

(75) a. Der Heiratsantrag verärgerte/verwunderte Laura.
'The marriage proposal annoyed/surprised Laura'

b. Der Heiratsantrag faszinierte/langweilte Laura.
'The marriage proposal fascinated/bored Laura'

At first sight, the structures appear to be very similar. But, in line with the assumptions outlined above, I suggest that the stimulus in (75a) but not the one in (75b) refers to a fact. If we make the intended interpretation explicit, we find incompatibilities or at least strong preferences. This is shown in (76).

(76) a. Dass er überhaupt den Antrag gemacht hatte, verärgerte/verwunderte Laura.
'That he made the marriage proposal at all annoyed/surprised Laura'

b. ?? Dass er überhaupt den Antrag gemacht hatte, faszinierte/langweilte Laura.
'The marriage proposal fascinated/bored Laura'

c. Die Art des Antrags faszinierte/langweilte Laura.
'The nature of the marriage proposal fascinated/bored Laura.'

An EO verb such as *faszinieren* ('fascinate') is less compatible with fact-denoting stimuli and rather licenses stimuli that refer to some other aspect of what the nominal denotes.

There are two reasons for why the contrast between the different EO structures and the possible interpretations of their stimuli does not always work perfectly. First and foremost, most fact-selecting EO verbs license other types of stimuli too, probably accompanied by a slight change of meaning of the verb itself. Very often, one can accommodate a reading with the proper context. Second, as already indicated during the discussion of the fact/manner ambiguity above, the nominal reference to qualities, in principle, never excludes a factive interpretation of a stimulus. For the proper evaluations, one has to watch out for "hidden facts", i.e., qualities embedded in facts. I, once again, illustrate this effect in (77).

(77) a. Es störte Laura, *wie* er sie geküsst hat.
'It bothers Laura, how he kissed her.'

b. Es störte Laura, dass er sie *so* geküsst hat.
'It bothers Laura, that he kissed her that way.'

Since a verb like stative *stören* ('bother') selects facts, any nominal that occurs as a stimulus receives the respective interpretation, even if it appears to be about qualities. Recall also that so-called property-derived nominals (e.g. *John's honesty*) are ambiguous between quality and fact readings too. The other way around, however, the use of explicitly factive stimuli usually excludes a quality-reading. All in all, it is a distinction of EO structure types rather than verbs. Some verbs, however, show strong preferences as to whether they select facts or qualities as their stimulus.

To summarize, the vast majority of propositional arguments of EO verbs is factive. Nevertheless, stative EO verbs vary with respect to the selectional preferences, as some verbs (e.g. *annoy* and *surprise*) rather relate facts to the experiencer, while the stimulus of others (e.g. *fascinate* and *bore*) refers to some content/quality of an entity or eventuality. In the following, I will call the former *factive* and the latter *non-factive* EO verbs and structures. In order to make this distinction more explicit, the next section discusses some reflexes of the different stimulus types.

4.2.3. Section summary

The primary goal of the chapter is to provide further indications for the nature of stative EO structures. The present section emphasized that the stimuli they contain may refer to rather abstract entities such as facts and qualities. It has been shown as a first step that one and the same nominal can denote different types of eventualities (i.e. states, events, results) as well as propositional content (*performance*-type nominalization). Other nominals have the potential to represent states as well as qualities of an entity or individual (*honesty*-type nominalization). In general, the look at the referential potential of nominalizations has shown that fact-/proposition- and quality-denoting arguments are real, independent of the argument-selection properties of psych verbs.

Secondly, based on the observation that many EO verb examples contain underspecified stimuli, it has been demonstrated that the underlying stimuli of EO verbs indeed are propositional in contrast to eventive. Moreover, proposition-selecting EO verbs also presuppose its truth, which makes them factive verbs (*surprise*-type). However, it has also been indicated that not all stative EO verbs preferably choose fact stimuli, as they are incompatible with stimuli headed by *the fact* (*fascinate*-type). In the next section, I discuss several reflexes of this distinction to show that such an assumption is borne out.

Types of stative EO structure stimuli

i. Nominalized arguments are often ambiguous as to whether they represent different types of eventualities or refer to entities in the abstract domain (facts, possibilities, qualities, among others).

ii. Nominal underspecification obscures the reference of the stimulus argument to some extent. On closer inspection, stative EO verbs license stimuli that refer to abstract entities such as facts and qualities.

4.3. Reflexes of the different stimulus types

As outlined above, stative EO verbs may select factive stimuli. This raises doubts about traditional causative analyses of stative EO structures, as proposition-like entities do not constitute prototypical causers and allow for temporally non-proximate relations to the experiencers or their experiential state. It has also been shown that not all EO verbs are compatible with factive subjects, which indicates that there are different types of stative EO structures which, in turn, may explain some of the variation exhibited by EO verbs.

In the following sections, I discuss several phenomena that appear to correlate with the different types of stimulus referents and also point to interesting differences among stative EO structures. First, factive and non-factive EO structures show specific (in)-compatibilities with certain lexicalizations of their stimuli (Section 4.3.1). Second, the structures show varying biases with respect to whether the subject of an embedded *because*-clause refers back to the matrix clause subject or to its object (Section 4.3.2). A third reflex of the presence of different stative EO structures is the availability of different prepositions that introduce the stimulus subject in an EO passive structure, i.e., some verbs have a strong bias as to whether they select one or the other preposition type, e.g., 'verärgert *über*' ('upset about') vs. 'beeindruckt *von*' ('impressed from/by') (Section 4.3.3). Fourth, factive stimuli do not allow for syntactically splitting the stimulus (Section 4.3.4). Finally, factive and non-factive structures seem to differ with respect to the experiencer's role when it comes to witnessing the stimulus (Section 4.3.5).

As mentioned before, some EO verbs show stronger tendencies than others for select-

ing a specific stimulus type. Therefore, I illustrate the properties with the help of prototypical representatives of the relevant EO structures in German. Verbs like *faszinieren* ('fascinate') , *anekeln/anwidern* ('disgust'), *langweilen* ('bore') or *anziehen* ('attract') are rather non-factive, whereas verbs such as *verärgern* ('anger'), *verwundern* ('surprise'), *aufregen* ('upset') or *erfreuen* ('delight') rather build factive EO structures.

4.3.1. Compatibility with different types of nominals

Incompatibilities with nominals arise when the nominal does not satisfy the subcategorization requirements of a predicate. Since it is suspected that stative EO verbs may have varying selectional properties regarding their stimulus, we can expect that this variation correlates with a varying compatibility with nominals predominantly representing facts or qualities. On the basis of the conceptual-semantic preferences and limitations of nominal reference, one can test the EO verbs' compatibility with different nominals. Such a contrast is provided in (78) and (79), respectively.

(78) a. Die Augen faszinierten sie.
'The eyes fascinated her.'

b. ?? Die Zusage faszinierte sie.
'The promise fascinated her.'

(79) a. Die Beine ekelten sie an.
'The legs disgusted her.'

b. ?? Die Zusage ekelte sie an.
'The promise disgusted her.'

The examples illustrate that some EO verbs are compatible with non-derived nominals, while the structures seem odd with nominalizations that disfavor any content or quality interpretations. Note that the compatible stimulus in these structures does not refer to individuals proper but aspects about the individuals or entities expressed by the nominal.

As for the choice of nominals, *Beine* ('legs'), *Augen* ('eyes') or proper names are non-derived and denote entities that may absorb qualities and disfavor factive interpretations. I refrain from using event nominalizations that allow for manner readings (*performance*-type) or property-derived nominals (*honesty*-type) which have been discussed in the scope of quality reference, as they also allow for factive interpretations, which we want to avoid at this point. Non-derived simple nominals that denote entities or

individuals, on the other hand, only poorly represent facts or propositions. Any possible interpretation in such a direction is the result of accommodation processes rather than being drawn from the nominals denotation. By contrast, derived nominals such as *Zusage* ('acceptance') may denote facts. As a side note, a good way to fully avoid non-factive or quality interpretations is to use truth predicates such as *truth* or *falsehood*. Although they sound rather formal, similar options for German could be *Echtheit* ('authenticity') or *Korrektheit* ('correctness'), among others. As a consequence, given this line of argumentation, the difference in judgment in this section mainly reflect accommodation costs.[10]

Compared to the examples above, the examples in (80) support the idea of varying selectional properties of stative EO verbs from the opposite direction: EO verbs that rather select fact nominals are less compatible with non-derived nominals.

(80) a. ?? Die Beine verärgerten/verwunderten sie.
'The angered/surprised her.'

b. Die Zusage verärgerte/verwunderte sie.
'The promise angered/surprised her.'

Recall that the stimulus in (80a) may receive a fact interpretation through accommodation, as contextual information is required for a proper interpretation.

Finally, there is a third class of EO verbs which appears to license both stimulus types. Example (81) shows that they are compatible with both types of nominals.

(81) a. Die Beine begeisterten/überwältigten/verblüfften sie.
'The legs amazed/overwhelmed/astound her.'

b. Die Zusage begeisterte/überwältigte/verblüffte sie.
'The promise amazed/overwhelmed/astound her.'

In general, the (in-)compatibilities with certain nominals for representing the EO stimulus directly result from the stative EO verbs' selectional properties and the respective ability of nouns to capture certain referent types. In all cases, i.e., whether facts or qualities or other contents are involved, the stimulus captures some aspect regarding an entity or eventuality and the respective EO structure would count as the grammatically particular structure type under discussion here.

[10] Any diverging judgments may be influenced by individual differences between judges and/or the referential potential of single nominals, especially when it comes to the accommodability of propositional content from non-derived nominals or proper names.

4.3.2. NP bias in *because*-clauses

In the following, I revisit observations concerning so-called *verbs of implicit causality* (IC verbs) and how their preferences with respect to the nominal reference in *because*-clause types may provide information about EO verbs and the different types of stimuli they select. For a first impression of the phenomenon, consider the contrast in (82).

(82) a. *Mary* fascinated John because *she* always knew what to say.
b. Mary admired *John* because *he* always knew what to say.
(Bott & Solstad 2014: ex 2)

It has been shown that IC verbs have specific biases for the coreference relation between the subject of an attached *because*-clause and the subject (NP1) or object (NP2) of the corresponding main clause (e.g. Bott & Solstad 2014, Ferstl et al. 2011, Garvey & Caramazza 1974, among others). Thus, taking the perspective of sentence production, the examples show that the subject of the *because*-clause prefers to take up the subject of the main clause in (82a), whereas in (82b), it refers to the object of the main clause. In this way, a verb like *fascinate* has a bias towards NP1, whereas a verb like *admire* has an NP2 bias.

As defined in Bott & Solstad (2014), "IC verbs are transitive verbs with two animate arguments characterized by the particular property of triggering explanations focusing systematically on one of the two arguments when followed by a because clause." (p. 214). It is furthermore argued that the NP bias is a reflex of the verb's tendency to select certain types of explanation relations that can be expressed by *because*-clauses. As shown in (83), Bott & Solstad (2014) identify several different *because*-clause functions that lead to different NP biases.

(83) a. Simple (direct) cause:
John disturbed Mary because *he* was making lots of noise.
b. Externally anchored reason:
John disturbed Mary because *she* had damaged his bike.
c. Internally anchored reason:
John disturbed Mary because *he* was very angry at her.
(Bott & Solstad 2014: ex. 7)

According to this, a *because*-clause can express simple causes (83a) or explain external (83b) or internal reasons (83c). Briefly put, simple causes give more specific information about the first argument taken up by the *because*-clause, internal reasons capture

attitudes or mental states of an attitude holder, whereas external reasons capture explanations situated externally to an attitude holder. In any case *because*-clauses capture propositional content which is somehow related to the matrix clause. The NP bias follows the individual associated with this content. Note that the choice of NP reference strongly depends on contextual information, as all relevant factors will be used for the resolution of such structures. As shown with (83), in principle, each type of *because*-clause can be associated with any verb. Nevertheless, IC verbs have a specific bias towards one of the options.

As for EO verbs, studies have shown that they exhibit a strong NP1 bias because they attach *because*-clauses that specify causes related to the stimulus argument (e.g., Hartshorne & Snedeker 2013, Bott & Solstad 2014). Examples (82a) and (83a) already illustrated this for *fascinate* and *disturb*.[11] However, regarding the present purposes and the assumption leading this section, it is possible that EO structures actually differ with respect to the NP bias – a difference which is linked to the type of stimulus these verbs predominantly select. First, a slight adjustment is necessary to make this argument. The definition of IC verbs and the examples so far only use proper names for the arguments in the matrix clause. In the case of stimuli of stative EO structures such arguments do not represent animates but serve as placeholders for abstract objects for which animacy is not a relevant feature. Additionally, as outlined above, not all EO verbs are actually compatible with such nominals, as they only poorly represent facts. This may have led to the exclusion of certain EO verbs in previous studies on IC verbs and, consequently shifted the class of tested verbs towards EO verbs with an NP1 bias and away from EO verbs, which could provide different results.

Therefore, in order to avoid this effect and to facilitate both factive and non-factive stimuli, I chose nominals that license both interpretations. Compare the structures in (84) and (85). They are intended as a rough simulation of a completion task for a production study.

(84) a. Das Fallen des Baumes faszinierte Laura, weil…
'The falling of the tree fascinated Laura(,) because…'

b. Das Fallen des Baumes wunderte Laura, weil…
'The falling of the tree surprised Laura(,) because…'

[11] The example in (83c) involves an EO verb (*disturb*) attaching an internal-reason-type *because*-clause with an NP1 bias. However, this is an example for an agentive reading of the verb, which will not be considered here.

(85) a. Das Schreien des Babys beeindruckte Laura, weil…
'The crying of the baby impressed Laura(,) because…'

b. Das Schreien des Babys verärgerte Laura, weil…
'The crying of the baby bothered Laura(,) because…'

As compared to the NP1 bias in cases like (84a) and (85a), the preference for the coreference relation in (84b) and (85b) is not as strong and rather tends to NP2. Example (86) provides example completions.

(86) a. Das Schreien des Babys beeindruckte Laura, weil *es* so kraftvoll war.
'The crying of the baby impressed Laura because it was so powerful.'

b. Das Schreien des Babys verärgerte Laura, weil *sie* früh aufstehen musste.
'The crying of the baby annoyed Laura because she had to get up early.'

In my view, this reflects the default presence of a factive stimulus with these verbs, precisely, because facts are not expected to be specified. As atomic definite descriptions factive EO stimuli are linked to the previous context and their structured content is not accessible. If a verb targets qualities of some kind, the same nominal is still available for specification. Simply put, there is nothing else to say about the truthfulness of states of affairs but since nominals cannot fully represent qualities, they are possible targets for specificational *because*-clauses. Compare the utterances in (87).

(87) a. # The falling of the tree annoyed Laura because of the fact that it happened.

b. The falling of the tree fascinated Laura because it was beautiful.

Although it is certainly possible to utter things like (87a), it appears rather redundant in contrast to (87b). In sum, if adjoined to factive EO structures, a *because*-clause rather targets experiencer-related information, whereas with non-factive EO structures it targets the stimulus, the latter being in accordance with the NP1 preference that has been ascribed to EO verbs before. As a result, the class of EO verbs involves both verbs with an NP1 and verbs with an NP2 bias, which implies that both subclasses require different explanation types to be encoded in an attached *because*-clause. For the present purposes, one can reduce the possible explanatory functions of *because*-clauses given in (83) to either providing a specification of the stimulus (NP1) or to giving an internal reason for the experiencer's feelings or attitude (NP2). I assume that the latter option gives explanations for a certain emotion or attitude, similar to internal reasons that are captured for agents (cf. example 83c).

In short, by default, verbs carry information about types of explanations with them which can be expressed by using *because*-clauses. It is argued that EO verbs mainly attach more specific information about their stimulus argument. However, a subclass of EO verbs selects factive stimuli, which prohibit information enrichment, ultimately leading to a change of explanation type to experiencer-related propositional content. This is consistent the idea that "[t]he IC bias follows from a general processing preference for not leaving "missing content" unspecified, i.e., a tendency to avoid accommodation" (Bott & Solstad 2014: 7). The previous observations have shown that the missing content with NP2 bias EO verbs relates to the experiencer rather than the stimulus. Therefore, for the present purposes, the IC bias with *because*-clauses is seen as a reflex of the selectional differences between EO structures.

4.3.3. PP selection bias

There are mainly two options for introducing the stimulus argument in EO passives in German: with *über* ('about') and with *von* ('from/by'). Examples of active EO structures and the corresponding passives are given in (88) and (89).

(88) Das Verhalten ihres Nachbarn verärgert/beeindruckt Laura.
'Her neighbor's behavior upset/impressed Laura.'

(89) a. Laura ist verärgert *über* das Verhalten ihres Nachbarn.
'Laura is upset about her neighbor's behavior.'

b. Laura ist beeindruckt *von* dem Verhalten ihres Nachbarn.
'Laura was impressed by her neighbor's behavior.'

As mentioned previously, stimulus arguments introduced by *about* PPs represent subject matter stimuli and refer to *something about x* rather than to an individual or entity *x*. Furthermore, it has been argued that EO structures involving subject matter stimuli show psych properties (cf. Reinhart 2003) (cf. Chapter 2). This assumption is problematic for German EO verbs considering that not all EO verbs license the corresponding *about* PP in the passive, although all of them appear to exhibit a stative use. Compare the examples in (90).

(90) a. Laura war verärgert *von/über Ninas Unehrlichkeit.
'Laura was upset by/about Nina's dishonesty.'

b. Laura war fasziniert von/*über Ninas Aussehen.
'Laura was fascinated by/about Nina's appearance.'

The contrast shows that some verbs have only one option to introduce the stimulus in passive structures, and that there are EO verbs that do not even license *about* PPs. As already illustrated in Section 3.2 before, in German, one can identify three classes of EO verbs based on *über/von*-selection under stative passive formation. They are listed once again in (91).

(91) a. EO verbs primarily licensing the preposition *von*
angewidert ('disgusted'), ermüdet ('tire out'), begeistert ('sparked'), provoziert ('provoked'), fasziniert ('fascinated'), verunsichert ('anxious'), genervt ('annoyed'), beeindruckt ('impressed'), motiviert ('motivated'), gelangweilt ('bored')

b. EO verbs primarily licensing the preposition *über*
erfreut ('delighted'), bestürzt ('distraughted'), verärgert ('upset'), amüsiert ('amused'), verwundert ('surprised'), erstaunt ('stunned'), empört ('outraged'), deprimiert ('depressed'), beunruhigt ('concerned'), entsetzt ('appalled'), betrübt ('saddened')

c. EO verbs licensing both prepositions *von* and *über*
enttäuscht ('disappointed'), überrascht ('surprised'), erschrocken ('frightened'), begeistert ('thrilled'), verblüfft ('bewildered'), schockiert ('shocked')

Thus, there are EO verbs that only license *über*, whereas some EO verbs only allow *von* PPs. A third class licenses the stimulus representation with both PPs, although not necessarily each to the same extent.

Interestingly, the existence of different PPs for EO passives may somehow be associated with the existence of different stimulus types for stative EO verbs and their relation to the experiencer, namely, that the propositional content given by facts is better represented with *über* PPs, whereas non-propositional stimuli such as eventualities, entities or qualities are represented by *von*. Accordingly, a verb's preference for exhibiting one or the other type of stative EO structure may have shaped the PP-selection preference of a verb. One indication for the distribution of *über* ('about') and *von* ('from/by') according to the different stimuli of stative EO structures comes from the prototypical semantic contribution of both PPs when associated with passive structures in general. Examples (92) and (93) provide typical environments for *von*, and (94) exemplifies *über* occurrences.

(92) Laura wurde *von Paul* ausgefragt.

'Laura was being questioned by Paul.'

(93) Das Fenster wurde *vom Wind* geöffnet.
'The window was being opened by the wind.'

(94) Es wurde *über den Fall* nachgedacht/informiert/geredet/diskutiert.
'It has been thought/informed/talked/discussed about the case.'

As shown in (92) and (93), the preposition *von* typically introduces agent individuals and causers, whereas *über* in its non-spatial use is often lexically selected by verbs that are associated with propositional content, which corresponds to thematic role labels such as subject matter or theme. Thus, in general, both PPs have quite different uses and are semantically biased.

More support for such a distinction comes from other languages that show stimulus PP variation with EO passives. Martin (2006), for example, also argues for the existence of different EO structures being partially lexicalized in the form of PP selection. Similar to the argument above, of both French PPs *de* (~'by') and *par* ('through'), only the former may express propositional referents (p. 371). See also Alexiadou & Iordachioaia (2014) for the uses of different PPs in Romanian and Greek EO structures. They argue that only Romanian *de* or *la* ('of'/'at'; vs. *de la* 'from') and Greek *ja* ('for'; vs. *me* 'with') introduce the subject matter argument of stative EO structures, while causer arguments would require the use of the respective alternative. Thus, these observations provide cross-linguistic evidence for the argument made here for German and it also supports what has been suspected before, namely, that different stimulus types in stative EO structures may vary when it comes to the involvement of causation.

What remains open is whether it is only EO structures with *about*-compatible subject matter stimuli that are grammatically exceptional (recall the assumptions for Backward Binding in Section 3.2). I assume that, although the PP selection might be indicative of relevant differences between the verbs, it is certainly possible that the *with/by*-licensing verbs belong to the same exceptional class of stative EO verbs as has been argued for *about*-selecting verbs. Restricting generalizations of exceptionality to *about*-cases would exclude prototypical EO verbs from psych property research; recall example (91a). Whether we indeed need to distinguish subtypes of stative EO structures in this regard has to be tested further, i.e., by contrasting verbs with different PP-selection patterns with respect to the licensing of psych properties. Nevertheless, given the objective of the Chapter, the PP-selection pattern with stative EO verbs reinforces the idea of different stative EO structures and stimulus types.

Apart from psych properties, the considerations lead to predictions about the general occurrence pattern of EO verbs and stimulus PPs, which clearly deserves a closer look and requires empirical validation. Corpus research might be a particularly suitable method here to gain more insight into the distribution of PP types across EO verbs, also considering the kind of referent that is expressed in each case. For example, it could be interesting to investigate the presence of derived and non-derived nominals in association with the different PPs. Another possibility is testing the acceptability of EO verb and PP combinations with certain types of nominals. For now, it can be noted that varying stimulus types and EO structures provide a possible explanation for the availability of different PPs across languages: some capture propositions, others express causers (i.e. eventualities and qualities; cf. Section 4.4.3).

4.3.4. Availability of split stimuli

Another issue related to the stimulus type variation with EO structures are the so-called *split stimuli*, where the stimulus argument is syntactically split into semantically dependent subparts (cf. Levin 1993, Engelberg 2015). It is illustrated in (95) that there is a variety of options to split EO stimuli.

(95) a. *Der Nachbar* nervt Laura *mit seinem dummen Verhalten/ durch sein dummes Verhalten.*
the neighbor annoys Laura with his stupid behavior/ through his stupid behavior
'The neighbor annoys Laura with his stupid behavior.'

b. *An/Bei dem Nachbarn* nervt Laura *sein dummes Verhalten.*
at/with the neighbor annoys Laura his stupid behavior
'As for the neighbor, his stupid behavior annoys Laura.'

c. *Der Nachbar* nervt Laura *weil er so ein dummes Verhalten an den Tag legt.*
the neighbor annoys Laura because he such a stupid behavior at the day lays
'The neighbor annoys Laura, because he displays such stupid behavior.'

In each case the stimulus *the neighbor's stupid behavior* is split into two parts, one that contains an individual and one that expresses the corresponding attribute. Although different means were used for the split, what is similar is that the bearer is separated from its property. In most cases, prepositions are involved. The only exception is (95c), which is a structure type that was discussed before in Section 4.3.2. It is a type of

because-clause that provides for information about the subject of the main clause. Thus, it counts as a split stimulus in a similar way. Moreover, it appears that another parallel to the *because*-clauses is that such a way of specification is restricted in factive EO structures. First, the examples in (96) and (97) show how a stimulus can be split up with *fascinate*-type verbs and non-factive stimuli at different levels.

(96) a. *Seine Augen* faszinierten Laura besonders.
'Especially his eyes fascinated Laura.'

b. *An ihm* faszinierten Laura besonders *seine Augen*.
at him fascinated Laura especially his eyes
'As for him, especially his eyes fascinated Laura.'

(97) a. *Die Farbe seiner Augen* faszinierte Laura besonders.
'Especially the color of his eyes fascinated Laura.'

b. *An seinen Augen* faszinierte Laura besonders *die Farbe*.
at his eyes fascinated Laura especially the color
'As for his eyes, especially the color fascinated Laura.'

The examples show split stimuli at different levels of 'embedding' of the bearer–property relation, i.e., it is something about the individual in (96) or about his eyes in (97b) that can be targeted by the split. However, facts are not associated with involved individuals or entities in the same way. As illustrated in (98), facts or nominalizations representing facts are not easily accessible for a specification of that kind.

(98) a. *Die Echtheit der Vase* verärgerte/verwunderte Laura.
'The authenticity of the vase angered/surprised Laura.'

b. ?? *An der Vase* verärgerte/verwunderte Laura *die Echtheit*.
'As for the vase, the authenticity angered/surprised Laura.'

c. *An der Echtheit der Vase* verärgerte/verwunderte Laura *dass es wahr war*.
'As for the authenticity of the vase, it angered/surprised that it was true.'

The latter example in (98c) is similar to the situation with *because*-clauses above, i.e., the factual specification creates rather redundant utterances (cf. ex. 87). In sum, with EO fact-denoting stimuli a split is not expected, while other types of stimuli allow for this type of construction. Such a difference should be represented in the distribution of split stimuli across stimulus and verb types. As for further empirical support, and similar to what has been proposed for the study of the PP-licensing pattern of EO verbs, this could be part of extended corpus studies. Engelberg (2015), for example, found

that only a relatively small number of EO verbs is responsible for the majority of split stimulus constructions. While he explains this with functional cognitive principles, parts of the distribution may also be related to the existence of EO structure subtypes and the involvement of facts.

4.3.5. Requirement for an experiential witness

The last aspect regarding the existence of different stative EO substructures concerns the observation that factive stimuli may have a temporally distant relation to the experiencer's state or attitude. Recall example (99).

(99) That there had been a sudden landslide yesterday worried Laura when she went to bed today.

Note that despite this distance, factive EO structures still comply with the fundamental property of psych predicates, i.e., that an experiencer is always aware of the issue described by the stimulus. However, it appears that not all stimuli of stative EO structures allow for this kind on non-proximate relation. The contrast in (100) shows that EO verbs differ with respect to whether it is necessary that the experiencer directly witnesses the stimulus or not.

(100) a. Das Fallen des Baumes faszinierte/beeindruckte/langweilte/fesselte Laura. # Leider/Zum Glück hat sie es nicht gesehen.
'The falling of the tree fascinated/impressed/bored/mesmerized Laura. Unfortunately, she didn't see it.'

b. Das Fallen des Baumes verwunderte/entsetzte/erboste/erstaunte Laura. Leider/Zum Glück hat sie es nicht gesehen.
'The falling of the tree surprised/appalled/incensed/astonished Laura. Unfortunately, she didn't see it.'

In (100a), the stimulus needs to be witnessed by Laura somehow, for example, in order to have the effect of fascination. By contrast, the falling of the tree in (100b) has not necessarily been witnessed by the experiencer. It appears that the requirement of experiential witnessing is associated with the kind of stimulus that is related to the experiencer, i.e., eventualities and qualities must be perceived, whereas facts form information units that only require knowledge regarding the existence of a state of affairs. See example (101) for another illustration of the contrast.

(101) a. Das Spiel langweilte Laura. # Ein Glück musste sie es nicht sehen.
'The game bored Laura. Fortunately, she didn't have watch it.'

b. Der Verlauf des Spiels verärgerte Laura. Ein Glück musste sie es nicht sehen.
'The course of the game annoyed Laura. Fortunately, she didn't have to watch it.'

Looking at the experiential witness facts, a temporally independent relation is licensed by factive stimuli, but not by other types of stimuli, which is due to their respective nature. Consider, for example, the structures in (102).

(102) a. John noticed that Mary arrived.

b. John noticed Mary's arrival.
(Zucchi 1993: 18)

It shows that the same effect can be observed with verbs selecting both object DPs and object complement clauses. The sentence in (102a) but not the one in (102b) can be true if John did not directly see the arrival but rather some indication of it. That is why Zucchi (1993) argues that the noticing of a propositional (ex. 102a) and an eventive entity (ex. 102b) are bound to different conditions. In the case of EO verbs, we can assume that facts inherently allow for an indirect relation between the stimulus and the experiencer, while non-factive stimuli seem to be related more directly and require the experiencer to witness a quality or eventuality that has an effect on her or him. Given that proximity has been formulated as a requirement for prototypical causal relations between stimuli and experiential states, prototypical causation is probably present in situation in which the experiencer witnesses the situation and is directly affected by it. For the present purposes, the contrasts furthermore support the idea that stative EO structures express different types of relations.

4.3.6. Section summary

The key finding in this section is that even if EO verbs are used non-agentively and lack canonical causers, that is, when they fall under the third class of interpretation as stative verbs, they differ with respect to the type of stimulus they involve. As a conclusion, this explains some of the differences that may be found across stative EO structures, including, but not limited to the varying compatibility with certain types of nominals, the availability of split stimuli, the PP-selection pattern (*von*/*über*), the varying IC bias in *because*-clauses or the differences when it comes to the direct witness requirement.

It has been recognized that, in order to allow stronger conclusions, the findings are in need of some empirical backup. Research suggestions have been made at the relevant points.

Nevertheless, the observations have clearly strengthened the impression that stative EO structures vary with respect to the involvement of prototypical causation, which cast doubts over generalized causative analyses for EO verbs. An example for such an indication is that, in order to introduce their stimuli in passives, some EO verbs make use of prepositions which are not known for representing causal efficacious entities (*über* 'about').

Lastly, I would like to mention the possibility that the EO substructures may correspond to other distinctions that exist in the literature, as, for example, the distinctions of emotion types. Just to name one case, Jackendoff (2007), differentiates inherent (to be bored/calm/depressed) and directed feelings (to be amazed/amused/interested/pleased), a distinction that could be the basis of the tendency to exhibit different structures (e.g. the former showing a tendency to be non-factive, whereas the latter class tends to exhibit fact-involving structures). Whether this is the case or whether any other distinction is mirrored here remains an open issue, but for now, it would not be surprising if types of emotions are associated with types of arguments.

In sum, in the present chapter, I discuss the properties of stative EO structures which have been identified before as a structure type that displays exceptional behavior. It has also been shown previously that the nature of stative EO verbs is not clearly understood. As confirmed here, there is reason to believe that stative EO verbs license more than one pattern of verb meaning. The identification of divisive and unifying features of these substructures contributes to the identification of those properties which might be crucial for the EO verbs' special status within grammar. While the previous section emphasized the differences between stative EO substructures, the following section points to their similarities.

Reflexes of the different stimulus types

i. One can identify different substructures of stative EO structures, i.e., factive and non-factive EO structures. Sometimes verbs have a strong tendency to build one or the other structure.

ii. The differences between stative EO structure types are reflected in their

semantic and selectional behavior, mainly confirming the presence of different types of stimulus referents.

iii. Assuming that both stative EO structure types exhibit psych properties, the crucial licensor should be found with all stative EO verbs.

4.4. Shared features of stative EO structures

The previous subsections provided evidence for the existence of at least two types of stative EO structures, i.e., EO structures with factive and non-factive stimuli. However, that is not to say that this distinction has any effect on the special status of both subtypes. Therefore, in the following, I point to properties which all stative EO structures have in common and which jointly set them apart from non-experiential structures and "non-exceptional" agentive and eventive EO structures. First, as discussed in Section 4.4.1, a definiteness restriction on both stimulus and experiencer NP implies specific discourse relations of EO structure arguments. Second, Section 4.4.2 takes up again the obligatoriness of the experiencer's awareness which holds for all stative EO structures. Finally, Section 4.4.3 addresses the issue of causal efficacy of stimulus referents, which is a challenging issue for any type of stimulus in stative EO structures. As a result, it appears that only the "name-giving" experiential awareness condition clearly sets stative EO structures apart from other structures.

4.4.1. The definiteness restriction

Other than canonical transitive action verbs and verbs of causation, stative EO structures appear to be subject to definiteness restrictions. Examples (103) to (105) show that stative EO verbs do not license indefinite stimuli indefinite. Assume that the statements follow a relatively neutral context such as *Wha's going on?*.

(103) Die/*Eine Farbe faszinierte/beeindruckte Laura.
'The/A color fascinated/impressed Laura.'

(104) Die/*Eine Blutwurst ekelte Laura an.
'The/A blood sausage disgusted Laura.'

(105) Die/*Eine Entscheidung verwunderte/verärgerte/empörte Laura.
'The/A decision astonished/angered/incensed Laura.'

Note that the examples involve verbs and structures which have shown rather disparate behavior in the previous section. For contrasting examples, consider (106) to (109).

(106) Der/Ein Freund besuchte/umarmte/kritisierte Laura. AGENTIVE, NON-EXP
'The/A friend visited/hugged/criticized Laura.'

(107) Der/Ein Freund ärgerte/provozierte Laura. AGENTIVE, EXP
'The/A friend teased/provoked Laura'

(108) Der/Ein Windstoß zerbrach die Vase/öffnete das Fenster. EVENTIVE, NON-EXP
'The/A gust broke the vase/opened the window.'

(109) Der/Ein Windstoß überraschte Laura. EVENTIVE, EXP
'The/A gust surprised Laura.'

The structures cover non-experiential as well as experiential transitive structures and all of them license both definite and indefinite stimuli. Apart from the contrast of interest, this supports the view that in their agentive and eventive interpretations, EO verbs behave just like regular non-psych verbs. The impression that EO verbs do not go well with indefinite stimuli in general also gains support by corpus findings in Levin & Grafmiller (2012), who contrast the ES verb *fear* with the EO verb *frighten*.

The indefinite stimuli in the stative EO examples above only seem to have quantificational interpretations. Note, in addition, that the use of determiner-less stimuli in EO verbs leads to generic readings. This is exemplified in (110).

(110) Blutwurst ekelte Laura an.
'Blood sausage disgusted Laura.'

It turns out that, within the class of stative EO verbs, obligatory definiteness of the stimulus argument is a common property. In his analysis of abstract object referents, Asher (1993) argues that *that*-clauses with fact heads constitute a unique characterization of a discourse referent. Consider the contrast in (111).

(111) # a/every fact that Mary is wise
(Asher 1993: 177)

Thus, definiteness is indeed expected for fact-referring DPs. As for non-factive stimuli, one could argue that the experiential assessment of a quality or manner first of all requires the introduction or salience of the bearer. Whatever the exact link between the nature of the stimulus and the obligatory definiteness is, given that definiteness is a signal for familiarity of the referent, we can assume that stative EO structure stimuli have been mentioned in the discourse or are somehow contextually salient. For aspects concerning definiteness in association with state descriptions and qualities, see, for example, Moltmann (2004) or Villalba (2009).

The definiteness effect as described above, however, is not restricted to stative EO structures. Consider examples (112) to (114).

(112) Der/* Ein Mann besitzt einen Wohnwagen.
'The/A man owns a trailer.'

(113) Der/* Ein Mann ähnelt einem Vogel.
'The/A man resembles a bird.'

(114) Der/* Ein Mann ist ein Lehrer.
'The/A man is a teacher.'

What all the predicates have in common, and also share with stative EO verbs, is that they form abstract (or Kimian) state expressions, i.e., particular types of states that have a temporal but no spatial dimension (cf. Rothmayr 2009). Again, the only valid interpretations using indefinite subjects or bare plurals are the quantificational-NP or the generic interpretation. In order to show that its not a pattern that concerns stative expressions in general, I refer to examples (115) to (117). They confirm that Davidsonian states, i.e., states which can be located in time *and* space, license indefinite subject NPs under non-generic sentence aspect.

(115) Der/Ein Mann steht vor dem Haus.
'A man is standing in front of the house.'

(116) Der/Ein Mann schläft auf dem Sofa.
'A man sleeps on the sofa.'

(117) Der/Ein Laken bedeckt den Stuhl.
'A sheet covers the chair.'

Thus, it seems that abstract state predications express concepts which require definite subject arguments. Note, however, that in contrast to other Kimian state expressions,

in stative EO structures, both argument DPs are definite. Compare the object DPs in examples (112) to (114) above with the examples (118) and (119).

(118) * Die Absage verärgerte einen Mann.
'The cancellation angered a man.'

(119) * Die Farbe faszinierte einen Künstler.
'The color fascinated an artist.'

Certainly, the definiteness effect associated with stative EO verbs and other predicates deserves more attention, especially in relation to the types of nominals involved in the structures. What one can draw from this so far is that the arguments of stative EO verbs are always familiar and the type of predication expressed by stative EO verbs applies to referents that have either been explicitly introduced or are contextually salient.

4.4.2. Awareness condition

As shown before in Section 4.3.5, EO structures differ with respect to the witness status of the experiencer. While facts constitute information, the content of which not necessarily has to be experienced directly, qualities and eventualities of any kind need the experiencer to witness the stimulus. Nevertheless, what stative EO structures have in common is that they denote an eventuality the experiencer cognitively participates in, i.e., the experiencer is conscious and fully aware of the stimulus. The relevance of consciousness or awareness is usually demonstrated with compatibility tests using phrases that target this aspect. See (120) and (121) for the corresponding examples.

(120) Die Entscheidung verärgerte/verwunderte Laura, # aber sie merkte es nicht.
'The decision angered/astonished Laura, but she didn't realize it.'

(121) Peters Ehrlichkeit faszinierte/beeindruckte Laura, # aber sie merkte es nicht.
'Peter's honesty fascinated/impressed Laura, but she didn't realize it.'

There are other verbs involving individual objects that seem to imply a similar status for their object. This is illustrated in (122) with two-place action verbs.

(122) Ein Freund umarmte/küsste Laura, aber sie merkte es nicht.
'A friend hugged/kissed Laura, but she didn't realize it.'

Although it seems implausible for the object individual not to realize the action, they are not necessarily aware of the situation. Imagine, for example, that the individual is asleep. Thus, the meaning of these verbs is valid if the individual is not awake or cognitively active. If eventualities involve changes of states, on the other hand, which imply that the object individual is fully affected, the situation may change. Consider, for example, the non-stative EO structures in (123) and (124), the former representing agentive and the latter causative EO structures.

(123) Ein Nachbar hat Laura provoziert, ? aber sie merkte es nicht.
'The neighbor provoked Laura, but she didn't realize it.'

(124) Ein Sturm hat Laura erschreckt, # aber sie merkte es nicht.
'A storm frightened Laura, but she didn't realize it.'

Similar to the action verb structures in (122), agentive EO structures may accept a non-aware experiencer under specific circumstances, but such an experiencer is not compatible with (124). Here, it seems difficult to grasp the role of the object's mind. Presumably, there is more to the role of a true experiencer than just being mentally affected, e.g., a stronger involvement or active mental participation. In fact, stative EO structures often involve some kind of evaluation towards the stimulus. Consequently, the judgments should be more clear, if we target the experiencer's role as an evaluator. This is borne out, as the previous structures are compatible with experiencer-related evaluation denial, see (125) and (126), whereas this is implausible with stative EO verbs, as shown in (127) and (128).

(125) Ein Nachbar hat Laura provoziert, aber es hat sie nicht interessiert.
'A neighbor provoked Laura, but she didn't care.'

(126) Ein Sturm hatte Laura erschreckt, aber es war ihr egal.
'A storm frightened Laura, but it didn't matter to her.'

(127) Die Entscheidung verärgerte/verwunderte Laura, # aber es interessiert sie nicht.
'The decision angered/astonished Laura, but she didn't care.'

(128) Peters Ehrlichkeit faszinierte/beeindruckte Laura, # aber es war ihr egal.
'Peter's honesty fascinated/impressed Laura, but she didn't care.'

As a consequence, it is not sufficient to say that experiencer objects are mentally affected. Instead, the stative use of EO verbs involves active cognitive participation of

the experiencer. As shown above, this holds for any type of stative EO structure and corresponds to the idea that EO structures denote internal eventualities: "[A] psychological experience is located solely in the Experiencer participant, in a similar way as an intransitive activity event is identified by its Agent" (Rozwadowska 2012: 570). The experiencer's role as an intentional individual and the close relation to agents will be emphasized in the next chapter, when aspects such as subjectivity and perspective come into play.

4.4.3. Causal efficacy of EO stimuli

Despite the stimulus distinction that has been worked out in the previous sections, the stimuli of stative EO structures have in common that they refer to some abstract aspect about an individual, entity or states of affairs, i.e., its truthfulness or its quality. Example (129) illustrates the different stimulus types once again.

(129) a. Die Farbe der Flüssigkeit fasziniert Laura/ekelt Laura an.
'The color of the liquid fascinated/disgusted Laura.'

b. Dass die Farbe nicht echt ist ärgert/wundert Laura.
'That the color is not authentic angers/surprises Laura.'

As mentioned before, the characterizations of the stimulus types touches on the issue of the causal efficacy of objects. The assignment of causal efficacy is associated with the potential spatio-temporal anchoring of objects in the world and with the perceptional access one might have to them, which means that prototypical causers are concrete perceptible entities with some kind of force which is able to trigger a change of state. This is undisputed for individuals, eventualities and natural causes, but a matter of debate for more abstract referents.

Causal efficacy mainly plays a role in fields of cognitive psychology and philosophy and, as a whole, goes beyond the scope of the thesis. Nevertheless, under the assumption that causal efficacy is indicative of whether such objects may be involved in structures expressing linguistic causation, I will discuss some aspects in the following paragraphs.

Briefly put, there are three options: first, stative EO verb stimuli are not causally efficacious. Second, their specific occurrence as EO structure subjects indicates that all are causally related to the experiencer, and finally, there could be variation with respect to the involvement of causality. I present thoughts on the causal efficacy of facts and qualities and will also address the relevance of mental events.

Causal efficacy of qualities

It has been stated that qualities have causal efficacy (cf. Moltmann 2006, Maienborn & Herdtfelder 2015 who use the term *tropes*). One indication for this is that they are perceptible. Consider the structures in (130).

(130) a. John's tiredness was the cause of the accident.

b. Mary noticed John's tiredness.
(Moltmann 2006: endnote 8; ex. 1)

The example shows that the degree of tiredness can be the initial part of causal relations and that it can be noticed by someone. Moreover, qualities are particulars, which means they are not abstract properties but fully specific instantiations of a property within a certain individual or entity (Moltmann 2006, Levinson 1978).[12] This existence is reason to believe that they are potential causes.

More direct support for the causer role of qualities comes from stative causation phenomena. Maienborn & Herdtfelder (2015) argue that, whereas eventive causation is a relation between events, stative causation may also hold between tropes. An example is given in (131).

(131) a. Der Boden war schwarz von Ameisen.
the floor was black from ants

b. Die Luft ist schwer von Blütenduft.
the air is thick from blossom-scent
(Maienborn & Herdtfelder 2015: 167)

The structures describe a causal relation between two manifestations of qualities, e.g. the blackness of the ants causes the blackness of the floor.

As a matter of fact, causal efficacy is often attested by the use of EO predicates, which presupposes that these are environments of regular causation. See (132) for example.

(132) a. Mary is frighteningly/shockingly pale.

b. Mary's paleness is frightening/shocking.
(Moltmann 2013: 301)

[12] To use (Levinson 1978)'s words for an illustration of the particularity of qualities, "'John's tenacity' may designate an entity which belongs necessarily to John alone, which all objects other than John are logically precluded from possessing, whereas 'John's being tenacious' never designates an entity with such characteristics" (p. 12).

The structures illustrate that the non-derived state (*Mary is pale*) as well as the respective nominalization (*Mary's paleness*) are compatible with reportedly causal predicates such as *frightening* or *shocking*. However, due to circularity, we cannot use this test to detect causality in the psych domain. Nevertheless, such occurrences of quality referents show that EO predicates are a natural environment for this type of referent.

To conclude briefly, although they may not be prototypical causers in the sense of agency and dynamicity, there is some evidence for the view that qualities engage in causal relations. This mainly comes from their perceptibility, their particular manifestation in individuals or entities.

Causal efficacy of facts

As for facts, the general view is that they have very low potential for being causally efficacious. Earlier in the chapter, I argued that this is reason to believe that some EO structures are non-causative. Recall example (133).

(133) a. John's jump caused the table to break.
b. ?? The fact that John jumped caused the table to break.
(Moltmann 2016: ex. 15)

Asher (1993), on the other hand, sets facts apart from propositions by arguing that facts appear to have causal efficacy. The examples in (134) aim to show that "facts may either cause or be caused by states or other facts" (Asher 1993: 29).

(134) a. The fact that John had a headache made him crabby.
b. John's crabbiness resulted in the fact that everyone avoided him.
c. John's crabbiness resulted in everyone avoiding him.
(Asher 1993: 29)

However, in contrast to the examples in (133), the structure in (134a) involves a predicate with a potential EO interpretation (*make so. crabby*), which is, in my view, the only way to validate the acceptability of the structure. In (135), I provide paraphrases for different uses.

(135) a. The fact that John had a headache makes him crabby, because he wanted to be fit for the exams.
b. ?? The fact that John had a headache makes him crabby. His behavior unsettles the whole crew.

c. John having a headache makes him crabby. His behavior unsettles the whole crew.

The structure in (135a) is a statement from the experiencer's perspective, while (135c) reinforces an interpretation under which the source of John's crabbiness is evaluated from outside. It seems that the former, but not the latter, is compatible with factive subjects. As a state, however, the causal effect of John's headache can be easily achieved, see (135c). Note also that in (135a) it is not the headache itself that triggers the crabbiness but the knowledge about it and the consequences that come along with it (e.g. not being fit for something important), which is processed by the experiencer. This type of relation corresponds to reason-based or explanatory relations facts are involved in (Steward 1997), as well as to the observations in Section 4.1, i.e., that facts allow for indirect temporal relations with the experiencer.

In short, it is agreed that facts "do not have a spatial location, do not act as objects of (direct) perception, and, arguably do not enter causal relations" (Moltmann 2013: 8; see also Steward 1997, Peterson 1997). It appears that the existence of facts in EO structures or mental environments in general led to the assumption that they have "probable causal efficacy" (Asher 1993: 60; fn. 1). This, however, depends on the analysis of EO verbs and cannot be used for the present purposes for reasons of circularity.

As a result, in general, there is some tendency towards the assumption that facts are less suitable for expressing genuine causation than qualities are, which points to the option that there is a difference between EO structure stimuli when it comes to their causal involvement. In both cases the use of EO verbs as a diagnostic tool for causal efficacy makes a solid evaluation difficult. In the following, I will briefly discuss an option that will complicate the picture of EO stimulus types even more, i.e., by showing that what might look like a propositional or factive stimulus rather is an active mental representation within the experiencer.

Mental events

EO stimuli have already been described as experiencer-internal representations of things that are not necessarily around the experiencer (e.g. Arad 1998a). In the domain of natural language referents this corresponds to mental events.[13] Support for the idea that not all EO stimuli are propositional comes from Moltmann (2013)'s analysis of, what

[13] I use *mental events* as a very general term, but see Moltmann 2013 for differences between categories of this kind, e.g., mental events vs. attitudinal objects.

she calls 'attitudinal objects'. She argues that, in contrast to facts and propositions, and similar to eventualities, they have causal efficacy. Her example is given in (136).

(136) a. The thought that she might fail frightened Mary.

b. The proposition that she might fail frightened Mary.
(Moltmann 2013: 135)

Note that, again, an EO verb has been used to demonstrate causal efficacy. This holds for all relevant examples I could find in the literature and is most likely due to the conceptual restrictions of mental events of this kind and the corresponding selectional properties of EO verbs. Nevertheless, there are properties that point to a potential causer role of mental events. The reason why the relevance of mental events leads to complications regarding the evaluation of stative EO structures is that mental events can be represented by *that*-clauses too. It has been mentioned before that, possibly, what looks like factive or propositional EO stimuli may also be a participants of a mental event. Similar to agents and causers being participants of eventualities, states of affairs can be the central part of an idea, thought, imagination or remembrance. As a consequence, *that*-clauses in EO structures are underspecified as to whether they represent facts or some active mental representation of something, i.e., *the fact/imagination/idea that p*. Given the potential difference in causal efficacy, we probably deal with a non-causal relation in the former and a causal relation in the latter case. For example, one can assume that the relation between a mental representation of something fulfills the proximity condition of prototypical causation, as the active representation may directly trigger an experiential state. In fact, the stimulus in such a case can now be characterized as an eventuality, which count as prototypical causers (cf. Section 4.1.1).

However, the nature of mental events in EO structures needs a more detailed investigation. For now, I simply assume that many EO stimuli may represent mental events, i.e. active mental representations. As potential causers, they fit in causative analyses of stative EO verbs. Nevertheless, I assume that a subclass of EO structures still relates facts to experiencers, which receives support from previous observations such as temporal distance and *about*-PP-selection for propositional arguments. More support comes from the comparison of EO verbs with predicates of evaluation in the following Chapter. Finally, as a general note, it is possible that this type of referential stimulus variation is irrelevant for the fact that EO verbs exhibit psych properties, just in parallel to the assumption that aspectual variation has no influence on these effects (cf. Chapter 2).

4.4.4. Section summary

The general aim of the present chapter is to gather information about the nature of stative EO structures. After the identification of different stimulus and EO structure types in the previous sections, the present section addressed their commonalities. Under the assumption that all the discussed instances are exceptional stative EO structures, the identification of shared features could reveal what is crucial for their peculiar nature with respect to psych properties.

To summarize, it has been shown that the arguments of EO structures underlie a definiteness restriction. Under the stative interpretation, both stimulus and experiencer are definite, which indicates that stative EO verbs relate two familiar arguments. Non-experiential action and causative verbs as well as eventive EO verbs, by contrast, allow for indefinite stimuli. It has also been shown that this definiteness effect is not EO-specific, as it occurs with other verbs expressing abstract states (e.g. *resemble*-type verbs). A second property shared by all stative EO structures is the fulfillment of the awareness condition. It has been shown that, in contrast to patients or themes, experiencers are always mentally active and non-indifferent with respect to the stimulus. This special role of the experiencer sets stative EO verbs apart from other verbs and structure types and links together experiencers and agents. Third, the stimulus referents of stative EO structures have a vague status when it comes to their role as potential causes of eventualities. This appears to be reflected in the lexical-semantic debate about whether stative EO structures express prototypical direct causation. The brief discussion indicated, however, that qualities are better candidates for causation than facts are. This also receives some support from the differences between EO substructures presented in the previous section: some EO verbs are rather compatible with simple non-derived stimulus nominals, select *by* PPs in the stative passive and require direct experiential witnessing of the stimulus, whereas others select proposition-like stimuli, select *about* PPs and allow for distant relations between stimulus and experiencer. The former pattern is clearly more consistent with causative analyses. Finally, I have pointed to the relevance of mental events and their possible causer role in EO structures. This is relevant because *that*-clause selection (also in its nominalized form) is not necessarily indicative of the presence of non-causative factive EO structures.

Shared features stative EO structures

i. Stative EO structures exhibit definiteness requirements, i.e., their arguments are always familiar or contextually salient.

ii. The experiencer must always be cognitively active and aware of its relation to the stimulus.

iii. Qualities rather than facts are suitable as causal triggers of emotional states. *That*-clauses and the respective nominals may also introduce causally efficacious mental events.

4.5. Summary and conclusion of Chapter 4

The aim of the present chapter is to characterize stative EO structures and discuss a number of properties which might help locating them in the lexical-grammatical system. The main motivation is that stative EO verbs are the class of predicates which is crucial for the investigation of psych properties. Moreover, the debate about the lexical and structural properties of EO verbs is still active and open with respect to their interpretation, the nature of their stimulus and the involvement of causation. In the following, I summarize the findings of the chapter.

In Section 4.1 it has been illustrated in more detail that EO verbs exhibit structures that correspond to established generalized patterns of verb meaning, i.e., they express activities/agentive structures, accomplishments/causative structures and states. Being the main focus, stative EO structures have been evaluated with respect to conditions on prototypical causation, also using diagnostics from language philosophy in order to determine the role of the stimulus referents and their relation to the experiencer. Traditionally, stative EO verbs are seen as expressing two concomitant and causally related states. Evidence has been presented that this does not hold for all kinds of stative EO structures: factive EO structures can express indirect, temporally distant relations between the stimulus and the experiential state, which does not comply with prototypical causation. These differences suggest that EO verbs build more than one stative structure type. Eventive and agentive uses of EO verbs are generally analyzed in parallel to non-experiential verbs of this verb class and are not expected to exhibit psych properties. Finally, I briefly discussed ambiguities of verbs where only the stative interpretation expresses emotive content, showing that stative EO structures are frequent

and productive in German and can also contain verbs which have an active non-psych use (*kill*/*touch*-type verbs).

Subsequently, in Section 4.2, I took up the observation that a stimulus such as *Nina* or *Nina's behavior* with stative EO verbs always stands for *something about Nina('s) behavior*. Independently, many nominals allow for different interpretations and their actual meaning is determined by the verbs' lexical-conceptual selection requirements for their arguments. Apart from individual- or entity-denoting nominals which disclose the type of eventuality or quality they are associated with, event nominalizations can express eventualities, manners or facts (*performance*-type nominals) and derived-property nominals can stand for qualities or facts (*honesty*-type nominals). It has been demonstrated that such placeholders or nominalizations, which often represent EO verb stimuli, might cover the fact that many EO verbs select proposition-like subjects as well as qualities.

In a further step, in Section 4.3, I suggested that the occurrence of different EO stimuli is reflected in other ways too. I have presented a set of differentiating properties supporting the idea that the class of stative EO structures consists of (at least) two subtypes. It has also been shown in Section 4.4 that both substructures share certain features. The findings are summarized in Table 4.1.

Table 4.1.: Summary of the effects of different stimulus types in EO structures

Property	Type 1 stimulus	Type 2 stimulus
Referent	**non-fact**	**fact**
Proper representation by non-derived nominals	yes	no
First NP in attached *because*-clauses	Stimulus	Experiencer
PP substitute	*von* 'from/by'	*über* 'about'
Experiential witness required	yes	no
Awareness required	yes	yes
Definiteness preferred	yes	yes
Causal efficacy attribution	potentially	potentially (depending on status of proposition as mental event participant)

First, it was demonstrated that EO verbs have different tendencies to combine with nominals which prototypically represent factive or non-factive referents. For exam-

ple, EO verbs that primarily select facts are less compatible with non-derived nominals (??*annoying/delighting legs*). Other EO verbs, on the other hand, allow for individual and entity-denoting stimuli which represents the bearer of a certain property (*fascinating/disgusting legs*). The PP-selection pattern (*by*/*about*), the NP bias in *because*-clauses, the licensing of split stimuli and the diverging requirements when it comes to the witness status of the experiencer further supported the varying nature of EO stimuli. Recall that I do not assume the stimulus selection to be as rigid as it may seem in the discussion, but EO verbs can nonetheless have strong tendencies towards one of the options, which may be attributed to their conceptual nature.

By exposing substructures even within the group of stative EO verbs, the present chapter reinforced the view that stative EO verbs are far from building a homogeneous class. The corresponding linguistic reflexes suggest that this distinction is relevant for at least some phenomena and may explain some of the properties that occur with EO verbs. However, it has also been interesting to see which features these subtypes share, as it indicates where the EO verb exceptionality might come from. As shown in Table 4.1, the common features were the definiteness of the argument DPs, the awareness of the experiencer and the disputable involvement of causation under the presence of stimuli which are more abstract that individuals or events. Among the common features of stative EO verbs, it is only the special identifier role of the experiencer that sets stative EO structures apart from all other transitive structures.

Different aspects have shown to complicate the situation regarding the issue of causality. First and foremost, the evidence for causal efficacy is often premised on EO predicates. Since the causative nature of EO verbs is not taken for granted here, such evidence cannot be considered. Another issue is that complex stimuli of EO verbs, i.e., those that can be represented by *that* clauses, can also stand for mental events or representations, which contain a state of affairs and directly trigger the experiential state internally. This blurs the lines between stimulus types and between causative and non-causative stative EO structures that has been established so far. Nevertheless, the investigation of non-EO verbs in the next chapter will shed further light on the EO-structure distinctions. It will turn out that both causative and non-causative EO structures find their counterpart in the non-experiential domain, i.e., in the form of locative verbs and evaluative predicates.

It should also not go unnoticed that the preceding subsections revealed a number of predictions, which are in need of more empirical support. That is, in general, the EO verbs' preferences with respect to the representation and nature of their stimulus

(types of nominals, PP selection, NP bias). Moreover, it has to be evaluated whether the stimuli have any relevance when it comes to psych properties. However, for now, the insights of the present chapter will rest on the native-speaker judgments given so far and I will leave the open questions and hypotheses to follow-up studies.

5. EO verb features with non-EO verbs

In the previous chapters, I discussed a number of properties and peculiarities of stative EO structures that help to get a better understanding of their position in the grammatical system. After the experimental confirmation of psych properties in Chapter 3, the last chapter revealed numerous indications for the existence of different stative EO subtypes. It will be shown in the present section that there are basically two classes of predicates which share relevant properties with EO verbs, i.e., locative verbs and evaluative predicates. The proximity to both classes point to causative and non-causative analyses of EO verbs and a solution of the Experiencer Object Problem independent from the argument-structural level.

So far, the different properties of stative EO verbs and their varying stimuli support the revelance of both stative-causative as well as non-causative analyses for exceptional EO structures. First, according to the stative-causative view, stative EO verbs express direct causation between two co-existing states. Properties such as the *by*-PP selection with passive formation, the direct witness requirement, the involvement of causally efficacious stimulus referents point to lexical causative analyses. On the other hand, properties such as *über*-PP selection, indirect spatio-temporal relations between stimulus and experiential state and the involvement of proposition-like arguments point to non-causative EO verb analyses. The latter position primarily emerged because, as shown in the previous section, many EO verbs select fact-nominals and license *that*-clause subjects.

With these observations in mind, I now turn to the non-experiential domain. The idea behind taking this perspective is that the consideration of non-experiential structures with similar properties may provide additional insights into the nature of stative EO structures, especially as to whether and how we can distinguish them from non-experiential structures. In principle, this challenges the idea of a psych-specific structure type. The leading question for the considerations in the present chapter is

whether one can identify classes of predicates that share relevant properties with EO verbs, and based on these results, extrapolate aspects of the peculiar nature of EO structures. Therefore, I take several aspects of the previous sections and discuss whether and to what extent they occur with non-EO structures. Examples for the structures under investigation in contrast to EO structures are given in (1) to (4), respectively.

(1) Stative causation

a. The city is surrounded by mountains. NON-EXP

b. The man is disgusted by blood sausage. EXP

(2) Propositional attitudes

a. He knows that Laura made a mistake. NON-EXP

b. It surprised him that Laura made a mistake. EXP

(3) Dispositional verbs

a. That Laura made a mistake ruined him. NON-EXP

b. That Laura made a mistake annoyed him. EXP

(4) Evaluative adjectives

a. Dass Laura einen Fehler gemacht hatte war dumm. NON-EXP
'That Laura made a mistake was stupid.'

b. Dass Laura einen Fehler gemacht hatte war ihm peinlich. EXP
'That Laura made a mistake was embarrassing to him.'

First, in Section 5.1, I elaborate the fact that stative causation has been attributed to other structures than those built by EO verbs (ex. 1). Moreover, the association of EO verbs with propositional referent types and their mental-domain semantics points to a close relation to propositional attitude verbs. Whether EO verbs could be analyzed along this line will be discussed in Section 5.2 (ex. 2). Indeed, the relation between the propositional argument and the EO verb is even more specific, namely, that the proposition functions as their subject. Interestingly, they are not the only class of predicates that license sentential subjects and, at the same time, appears to carry causative semantics. I discuss the EO verbs' similarities to the so-called dispositional verbs in Section 5.3 (ex. 3). As a last point, sentential subject licensing is often associated with evaluative semantics, which is consistent with the observation that prototypical evaluative predicates also assign judgments to abstract entities. Their relation to experiential structures will be the topic of Section 5.4 (ex. 4).

5.1. Stative causation with EO and locative (LOC) verbs

The idea behind the present chapter is to elaborate the relation between the experiential and the non-experiential domain by identifying EO features with non-EO verbs. The goal is to get a better understanding of the nature of psych verbs and the peculiar behavior of EO verbs. As for the aspectual nature and event structure of EO verbs, it has been shown before that stative EO verbs have often been analyzed as an intermediate case that sits between pure states and eventualities of canonical causation. The lack of an external argument and the presence of a result component in their semantics lead to a characterization of EO verbs as verbs of stative causation, as opposed to canonical eventive causation. The difference between the two is illustrated again in Figures (5.1) and (5.2).

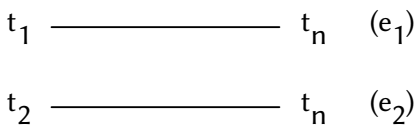


Figure 5.1.: Stative causation (Biały 2005)

Figure 5.2.: Eventive causation (Biały 2005)

Typically, stative causation involves two causally related eventualities e_1 and e_2, whereas eventive causation means that the causing eventuality e_1 precedes the resulting eventuality e_2. The research question immediately following this EO structure characterization is whether having this structure type is a specific EO property and whether it may serve as an explanatory source for the EO verbs' exceptional behavior. Therefore, in the present section, I address an observation that is crucial for the discussion, namely, that a stative causative structure such as in (5.1) has also been assigned to a class of verbs outside the experiential domain, namely, to verbs of the *obstruct*-class (see, e.g., Kratzer 2000, Rothmayr 2009, among others). A first example is given in (5).

(5) Laub verstopft die Regenrinne.
'Leaves obstructs the gutter.'

Here too, two states, the leaves obstructing (e_1) and the gutter being obstructed (e_2), hold at the same time, whereby the e_1 causes e_2. A non-exhaustive list of these verbs is provided in (6), together with a list of EO verbs in (7) to highlight both classes of interest.

(6) *abdecken* ('cover'), *ausfüllen* ('fill'), *begrenzen* ('delimit'), *dekorieren* ('decorate'), *durchziehen* ('pass through'), *schützen* ('protect'), *überziehen* ('cover/enrobe'), *umhüllen* ('encase/envelop'), *verbinden* ('connect/combine'), *verstopfen* ('obstruct')

(7) *amüsieren* ('amuse'), *anwidern* ('disgust'), *begeistern* ('excite'), *beeindrucken* ('impress'), *deprimieren* ('depress'), *faszinieren* ('fascinate'), *nerven* ('annoy'), *schockieren* ('shock'), *überraschen* ('surprise'), *verblüffen* ('baffle')

The *obstruct*-type class is not clearly defined. Nevertheless, as will be discussed below, they share several selectional and structural properties. Semantically, it seems that they all provide information about the location of something. Therefore, Rappaport Hovav (2016) calls them *location object verbs*, which captures the fact that their object refers to a location or ground, as demonstrated with some more examples of this structure class in (8).

(8) a. Snow covers the mountain.
b. The army surrounds the city.
c. The bags block the doorway.
d. Candles decorate the cake.
(Rappaport Hovav 2016: 7)

I assume that the verbs of the *obstruct* class at least involve some kind of configurational semantics, which might include or imply locative information. Either way, taking up their semantic core, I refer to them as locative (LOC) verbs in the following discussion.

It is argued that, fairly similar to the EO ambiguities that have been described in Section 4.1, LOC verbs are ambiguous between eventive and a stative interpretations. The paraphrase for the stative interpretation of (5) is given in (9) and a possible eventive interpretation is exemplified in (10).

(9) Weil der Hausmeister lange nicht da war, verstopfe Laub die Regenrinne.
'Because the janitor was not there for a long time leaves obstruct the gutter.'

(10) Laub verstopft langsam die Regenrinne.
'Leaves slowly obstruct the gutter.'

It is the stative version that counts as a case of stative causation, i.e., the predicate denotes a relation, in which a state causes another state without the implication of dynamicity. Nevertheless, LOC stative causation is not identical to stative EO structures in all points. See, for example, that they appear to disallow *that*-clause subjects, which is a property that has been observed with many EO verbs.

(11) * Die Tatsache dass Laub auf dem Dach liegt, verstopft die Regenrinne.
"The fact that leaves are on the roof obstructs the gutter."

The following sections address both issues: first, in Section 5.1.1, I examine the similarities between stative LOC and EO verbs, and second, in Section 5.1.2, I discuss some aspects that distinguish the structures. The question is whether the same structure type underlies LOC and EO verbs, which have both been characterized as predicates of stative causation. Subsequently, in Section 5.1.3 I elaborate on the options and problems for parallel analyses of LOC and EO verbs. The findings are summarized in Section 5.1.4.

5.1.1. Similarities between LOC and EO verbs

In the following paragraphs, I present the similarities between LOC and EO structures. The properties under discussion are the stative/eventive ambiguity, the instrument alternation and the licensing of stative passive structures with a special focus on the realization of *by* phrases in these passives. The discussion will show that, although the behavior of both classes is quite similar, we find exceptions for all types of argument alternations in both the LOC and the EO verb classes. This emphasizes the lexical-semantic variation within these conceptually defined classes.

Stative/eventive ambiguity

Following Davidson (1967), sentences may carry a referential event argument in addition to the arguments for the subject and the object roles. These event arguments may also be differentiated according to the type of event they describe, i.e., most prominently, a state or an event. Kratzer (2000) argues that the event argument of structures

such as in (5) above can carry an event or a state variable which derives the eventive and the stative structure, respectively. The eventive structures express a causal relation between an event and a result state of obstruction, whereas the stative use involves a causal relation between two states, i.e., the leaves being at a certain location, or the gutter having a certain property, as the causing state and the obstruction of the gutter as the result state. The examples in (12) and (13) exemplify the ambiguity for LOC in comparison with EO verbs. Note that modifiers targeting the agentivity of the subject individual make the respective eventive uses explicit (a.-structures).

(12) a. Hans verstopft die Regenrinne mit Absicht. EVENTIVE LOC
'Hans obstructs the gutter on purpose.'

b. Laub verstopft die Regenrinne. STATIVE LOC
'A cloth obstructs the muffler.'

(13) a. Ihr Nachbar nervt Laura mit Absicht. EVENTIVE EO
'Her neighbor annoys Laura on purpose.'

b. Die Entscheidung nervt Laura. STATIVE EO
'The decision annoys Laura.'

Consequently, LOC and EO verbs share the potential for stative/eventive ambiguities. As shown in Rothmayr (2009), these ambiguities can be found with other verbs too, for example, dispositional verbs (e.g. *help*, cf. Section 5.3) or *threaten*-type verbs).

Instrument alternation

According to Rothmayr (2009)'s testing, stative LOC and EO verbs denote Kimian states. They have been introduced before as abstract states which are more complex than simple states (*resemble*-type) and, according to their ontological properties, have a temporal but no a spatial dimension (Maienborn 2008). Another shared property of abstract states is that they allow for degree modification. Example (14) shows that Kimian state predicates have a degree instead of a time span reading when their result state is modified by *ein bisschen* ('a little bit').

(14) a. Die Entscheidung nervt Laura ein bisschen. EO DEGREE
'The decision annoys Laura a little bit.'

b. Das Laub verstopft den Auspuff ein bisschen. LOC DEGREE
'The leaves obstruct the muffle a little bit.'

For comparison, consider (15), which uses the same modifier but favors a time-span reading, and consider also the canonical case of a Kimian state predicate in (16), which receives a degree interpretation.

(15) Paul hat ein bisschen im Garten gesessen. TIME SPAN
Paul has a little-bit in-the garden sat
(Maienborn 2003: ex. 37b)

(16) Carol ähnelte ein bisschen ihrer Großmutter. DEGREE
Carol resembled a little-bit her grandmother
(Maienborn 2003: ex. 39c)

From the class of Kimian state verbs, LOC and EO verbs have the closest semantic proximity, as both appear to constitute an instance of stative causation. As an identification feature for verbs with stative causative uses, Rothmayr (2009) points out that they are expected to license the instrument alternation, which means that they are able to use the instrument DP of the eventive use as the subject of the corresponding stative use. As illustrated in (17) and (18), LOC and EO verbs share this property.

(17) a. Laura verstopft die Regenrinne *mit Laub*. EVENTIVE
'Laura obstructs the gutter with leaves.'

b. *Laub* verstopft die Regenrinne. STATIVE
'Leaves obstruct the gutter.'

(18) a. Der Nachbar ärgert Laura mit *fiesen Bemerkungen*. EVENTIVE
'The neighbor teased Laura with mean remarks.'

b. *Die fiesen Bemerkungen* ärgern Laura. STATIVE
'The mean remarks annoy Laura.'

At this point, it is important to note that there are verbs in both classes which do not undergo the instrument alternation, for example, *bewohnen* ('inhabit') and *umgeben* ('surround') in the LOC class and *faszinieren* ('fascinate') and *anwidern* ('disgust') in the EO class. That is because they lack an agentive-eventive counterpart which may display the instrument. Thus a categorical identification of the relevant verbs should not be based solely on this type of alternation. Recall that the non-agentive uses of EO verbs have the option to split their stimuli with the help of *mit* ('with') phrases (cf. Section 4.3.4). An example is given in (19).

(19) Der Nachbar fasziniert Laura mit seinen schönen Augen.
'The neighbor fascinates Laura with his beautiful eyes.'

In this case, however, the PP is a causal phrase which captures parts of the complex (subject) stimulus rather than being an instrument which modifies the manner of action.

Stative passive

The stative passive licensing pattern is probably the most convincing similarity between LOC and EO verbs towards a unified lexical-semantic analysis. This is because their type of stative passives jointly sets them apart from all other verb classes.

Generally speaking, the availability of stative passives is directly related to the presence of causative semantics, as it is licensed by the verb's resultative component (cf. Gehrke 2011). Typical cases are stative passives of causative verbs such as *heilen* ('heal/cure') or *zerreißen* ('tear apart'). Consider the examples in (20).

(20) a. Laura ist geheilt.
'Laura is cured.'

b. Das Blatt ist zerrissen.
'The sheet is torn apart.'

The examples in (21) display that both EO and LOC verbs license stative passivization, which indicates the presence of a resultative semantic component. Thus, the caused state e_2 of the stative causative relation is a suitable target for this operation.

(21) a. Laura ist fasziniert. EO
'Laura is fascinated.'

b. Die Dachrinne ist verstopft. LOC
'The gutter is obstructed.'

Interestingly, passives have also been characterized with respect to the temporal relation between causing and result state. Rapp (1996) differentiates *Gleichzeitigkeitsrelationen* (simultaneity relations) and *Nachzeitigkeitsrelationen* (consecutiveness relations) that can hold between a causer and a causee, meaning that either two eventualities exist parallel or one eventuality follows the other. The relations are exemplified in (22a) and (22b), respectively.

(22) a. Das Haus ist bewohnt. SIMULTANEITY RELATION
'The house is inhabited.'

b. Das Kaninchen ist erwürgt. CONSECUTIVENESS RELATION
'The rabbit is strangled.'
(Rapp 1996: 243)

The simultaneity characterization clearly corresponds to the concept of stative causation that has been defined above, i.e., a causal relation between two co-existing states.

Given the subtypes of stative passives that have been established in the literature, the characterization of stative passives of LOC and EO verbs roughly corresponds to passive types that have been called *qualitative* (Maienborn 2009), *characterizing* (Brandt 1982, Rapp 1996) or *target state* passives (Kratzer 2000) or passives denoting result states of event kinds (Gehrke 2011). I refer the reader to the corresponding references for more details.

The resemblance of the two verb classes becomes more apparent when we look at the introduction of the argument which has been suppressed by the passive formation. As noted in Rapp (1996), and illustrated in (23), there are two types of verbs that undergo stative passivization and at the same time license the adjunction of a *von* ('by') phrase, i.e., verbs that belong to the LOC or EO class.[1]

(23) a. weil das Haus von Studenten bewohnt ist
because the house by students inhabited is
'because the house is inhabited by students'

b. weil er von der Musik begeistert ist
because he by the music fascinated is
'because he is fascinated by the music'
(Rapp 1996: 247)

By contrast, the stative passive of canonical causative verbs does not license the addition of such a *von* PP; see (24).

(24) a. *Laura* öffnet/zerstört das Fenster.
'Laura opens/destroys the window.'

b. Das Fenster ist (**von Laura*) geöffnet/zerstört.
'The window is opened/destroyed (by Laura).'

[1]What is more, LOC verbs license the eventive passive without losing their stative meaning. In this respect, they differ from EO verbs, as shown by the contrast in (i).

(i) a. ?? *weil er von der Musik begeistert wird.*
because he by the music fascinated becomes
'because he is being fascinated by the music'

b. *weil das Haus von Studenten bewohnt wird*
because the house by students inhabited becomes
'because the house is being inhabited by students'

In (24b) the PP is intended to capture the external argument of the active counterpart in (24a), i.e., an agent or a causer. However, as argued in Rapp (1996), the *von* PP in stative passives can only represent an argument that is associated with the result state component of the verbal meaning.

Indeed, external arguments such as agents and causers are arguments of causing eventuality (e_1) and not directly linked to this result state. As a consequence, they are excluded from stative passives. The contrast between the stative passives shows that the subject argument of both stative LOC and stative EO verbs is associated with the state component and no proper external argument.

As emphasized in Section 4.3.3, stative passives of EO verbs use (at least) two different PPs for the stimulus introduction, i.e., *von* and *über*, roughly corresponding to English *by* and *about*.[2] Moreover, the verbs show preferences when it comes to the choice of the PP type. Thus, in many cases *über* instead of *von* is selected for stative passives. In this respect, Iwata (1993) differentiates two types of stative passives built by EO verbs in English: "the adjectival [here: stative] passive with a *by*-phrase, and the adjectival passive with an idiosyncratic preposition", capturing English PP variation with EO verbs, using 'by', 'at', 'with', 'in' and 'of' (p. 163). For that matter, note that the type of PP with LOC verbs is not restricted to *von* either. There are cases involving causal *mit* ('with') or *durch* ('through'), as exemplified in (25).

(25) Die Möbel sind von einem/ mit einem/ durch ein Laken verdeckt.
the furniture is by a with a through a sheet covered

Thus, it appears that both verb classes exhibit idiosyncratic PP-selection in their stative passives.

Finally, I would like to point to a particular type of stative causation, which has been adduced before in the context of causal efficacy of qualities (cf. Section 4.4.3). It appears that EO and LOC verbs have properties parallel to Maienborn & Herdtfelder (2015)'s stative causation involving tropes. Recall that tropes is a name for property-denoting referents, which have their own ontological justification alongside individuals and eventualities. First, as shown in (26) trope causation also seems to license a causal version of the *von* PP. Causal *von* ('by') is understood as contrasting with the *von* that introduces agents as in *von x geküsst* ('kissed by x'), which refers to agents. Second, trope causation requires spatio-temporal contiguity (Maienborn & Herdtfelder 2015:

[2] There is at least one verb in German, which does not take the regular *von* or *über* but a verb-specific type, i.e., *interessiert an etw.* ('interested in [lit. *at*] sth.').

168). Both aspects fit the characterization of EO or LOC verbs in contexts of stative causation.

(26) a. Der Boden war schwarz von Ameisen.
the floor was black from ants

b. Die Luft ist schwer von Blütenduft.
the air is thick from blossom-scent
(Maienborn & Herdtfelder 2015: 167)

Taken all together, the crucial point that can be made here is that EO verbs and LOC verbs share a number of properties which indicates that they exhibit the same lexical-semantic structures. Although, among other things, the varying availability of eventive/stative ambiguities and instrument alternations within each class emphasizes the respective heterogeneity, it does not necessarily separate LOC and EO verbs from each other. I will discuss relevant differences between the verb types in the following section.

5.1.2. Differences between LOC and EO verbs

The previous subsection revealed that LOC and EO verbs behave very similar. It looks like their joint status comes from their distinctiveness from other transitive verb classes, especially regarding their passive licensing pattern. Nevertheless, there are also differences, whose relevance will be evaluated in the following. First, there are reflexes suggesting that LOC and EO stative passives, in fact, adjoin different types of *von* PPs. It will be shown, however, that this assumption is influenced by the verbs' respective discourse preferences. A second and relatively stable difference is that, in contrast to EO verbs, LOC verbs do not license *that*-clause subjects.

Different types of *by* phrases?

As mentioned in the previous section, the presence of *von* PPs in passives is not restricted to the agent/causer-encoding role in eventive passives. The PP may also represent arguments in the stative passive, as long as it captures an argument that is regularly associated with the semantic component targeted by the stative passivization, i.e., the result state component of the verbal meaning. It has also been shown that this is only an option for EO and LOC verbs, thus rendering them exceptional in the phenomenal domain of stative passives. However, there appear to be reasons to assume that EO and

LOC verbs select different types of *von* PPs. To illustrate this, I will first refer to examples from the literature and then comment on the problems with the given evaluation.

As argued in Schlücker (2005), we find at least two different types of *von* PPs within stative passive structures, and both play different semantic and syntactic roles. One indication for this is that stative passive structures involving *von* differ with respect to their unmarked intonation patterns, as illustrated by the contrast in (27).

(27) a. weil die Wände von FEUer geschwärzt sind NON-EXP
'because the walls are blackened by fire'

b. weil Peter von dem Gejammer geNERVT ist EXP
'because Peter is irritated by the lamentation'
(Schlücker 2005: 421)

The structure in (27a) has neutral stress on the PP and contains the non-experiential verb *schwärzen* ('blacken') which counts as a causativized adjective. By contrast, the structure in (27b) carries neutral stress on the participle and contains an EO verb. Note that switching to the presumed irregular pattern, i.e., participle in the first case and adjunct in the latter, leads to a contrastive interpretation instead of a neutral one. Consider the examples in (28) to see that the adjunct-stress pattern of the causativized adjectival construction (27a) can indeed be generalized for LOC verbs.

(28) a. weil das Gefäß von GeWEbe verstopft ist
because the vessel with tissue obstructed is

b. weil der Berg von SCHNEE bedeckt ist
because the mountain with snow covered is

c. weil die Stadt von BERgen umgeben ist
because the city with mountains surrounded is

d. weil das Haus von StuDENten bewohnt ist
because the house with students inhabited is

Note, however, that the intonation pattern is also linked to the respective referential status of the embedded DP in LOC and EO structures. In fact, both the referential status of the DP as well as the stress pattern have been argued to mirror differing syntactic embeddings of the PPs, i.e., weak referentiality and default modifier-stress as in (28) and (27a) indicate that the PP is a V-adjunct, whereas referential DPs and stress on the participle (27b) are evidence for VP-adjuncts (cf. Schlücker 2005 and Herdtfelder

& Maienborn 2015).[3] Therefore, following these assumptions, it looks like PPs in stative passive LOC structures have a closer relation to their predicate than the PPs of EO verb passives. Given the traditional examples, this is due to varying preferences when it comes to the referential status of the embedded DP. With EO verbs, they are rather definite, while LOC verbs frequently occur with indefinites. For example, for LOC passives we can try and "loosen" the relationship between participle and PP adjunct by using definite embedded DPs, as shown in (29).

(29) a. weil das Gefäß von dem GeWEbe verstopft ist
because the vessel with tissue obstructed is

b. weil der Berg von dem SCHNEE bedeckt ist
because the mountain with snow covered is

c. weil die Stadt von den BERgen umgeben ist
because the city with mountains surrounded is

d. weil das Haus von den StuDENten bewohnt ist
because the house with students inhabited is

The examples are built parallel to the structures in (28) above, but this time, they contain two definite nominals. Under the presumed stress pattern for LOC verbs, the presence of two definites leads to a contrastive interpretations of the embedded DP. For neutral accenting, it appears that the stress would need to shift to the participle or be at least present on both participle and PP. All in all, it seems difficult to identify the source of the contrast between (28) and (29), i.e., whether it is the stress pattern under referentiality or the general incompatibility of LOC verbs with definite embedded nominals. The example in (30) illustrates the most natural environment for a verb such as *übergießen* ('cover with something liquid'), i.e., with a non-referential noun embedded in the PP.

(30) Alle wollen den Laden aufsuchen, weil der Kuchen, den sie dort
everyone wants the shop visit because the cake that they there
verkaufen von Schokolade übergossen ist.
sell with the chocolate covered/doused is
'Everyone wants to visit the shop because the cake they sell there is covered with chocolate.'

[3]The analysis of the stress pattern is based on the assumption that with V-adjuncts, there is a close relationship between the modifier PP and the participle due to the formation of a informational unit with the participle. VP-adjuncts, on the other hand, form their own information units (Schlücker 2005). This relates to the stress pattern insofar that integrated phrases follow different prosodic rules. Here, as a rule, the integrated V-adjunct phrase will be stressed rather than the participle (cf. Jacobs 1993).

Such preferences go well with the assumption that stative LOC passives add *von* phrases which are rather seen as "parts of fixed expressions and idioms" (Gehrke 2011: 251). We have seen before that stative EO passives, on the other hand, have their default main stress on the participle and that the corresponding example contained definite embedded nominals. The contrast in (31) ilkustrates what happens if a definite noun phrase is used instead.

(31) Laura ist komisch drauf, weil…
'Laura is acting weird because…'
a. weil sie von einem HUND genervt ist?
'She is annoyed by a DOG'
b. weil sie von einem Hund geNERVT ist.
'She is ANNOYED by a dog'

Following the information structural status of the PP, the accent on the adjunct is more natural (31a), while main stress on the participle leads to a contrastive interpretation (31b). Thus, the question whether there are different *by* PPs at hand in EO and LOC passives is linked to the discourse preferences of both verb types and the associated arguments.

Supporting the assumption of different attachment sites for *von* PPs, Maienborn & Herdtfelder (2015) argue that the status of the PP also correlates with the stative/eventive interpretation of a structure, i.e., the *von* in stative causative structures is an A-adjunct, whereas the eventive use involves AP-adjunct PPs. Example (32) illustrates the different interpretations.

(32) a. Das Hemd ist weiß von Waschpulver. STATIVE
the shirt is white from washing-powder
'The square is white from the mimbles.'
b. Das Hemd ist weiß von dem Waschpulver. EVENTIVE/STATIVE
The shirt is white from the washing-powder
(Herdtfelder & Maienborn 2015: 43)

The sentence in (32a) is stative only and expresses that the washing powder is white and located all over the shirt thereby transferring the property of being white to the shirt. The structure in (32b), on the other hand, has an additional eventive use. Under this reading, the most salient scenario is that the washing powder cleaned the shirt from dirt until it was white. Aside from supporting the existence of different types of *von* PPs the example makes clear that, although there is a tendency for an A-adjunct

to occur with non-referential and AP-adjuncts with referential nominals, it does not strictly correlate with the availability of a stative causative interpretation (cf. Herdtfelder & Maienborn 2015). Recall that the structure in (32b) can have both interpretations. Therefore, as for the EO/LOC comparison, I assume that the varying preferences regarding referentiality and the default intonation in their stative passives do not count as arguments against their shared stative causative semantics.

To summarize briefly, the discussion revealed that good evidence has been established for the existence of two types of *von* PPs in stative passive structures. The properties of stative EO and LOC passives show that different PPs are involved, respectively. On the other hand, it has also been argued that this is independent of the observation that stative EO and LOC verbs both can express stative causative eventualities. It remains open to future work, however, what exactly the association is between *von* PP attachment, referentiality and the availability of stative causation.

Subject-type

Another potential difference between EO and LOC verbs is the type of referent they accept for their subject argument. Up to this point, stative causation is defined as a abstract (Kimian) state expression in which a state causes another state. However, as outlined in Section 4.2 the stimuli in special EO structures may also refer to non-eventualities, i.e., objects that are more abstract and are not seen as being regularly involved in causal relations. Most importantly, many EO verbs license *that*-clause subject. As a matter of fact, Rothmayr (2009) argues that the licensing of sentential subjects is a further unifying property of EO and LOC verbs. Her examples are given in (33).

(33) a. Daß ein Baum vor dem Fenster steht, behindert die Aussicht.
that a tree in.front.of the window stands disturbs the view.
'It is blocking the view that there is a tree in front of the window.'

b. Daß Haare im Abfluß sind, verstopft ihn.
that hair in-the drain are obstructs it.
'It obstructs the drain that there is hair in it.'
(Rothmayr 2009: 47)

However, I do not agree with the judgments and would rate them as strongly marked. I assume that the varying judgments arise from different interpretations offered by the structure in (33a), i.e., the structure is well-formed under a dispositional interpretation of the verb, which then roughly means *not good for the view*. Under the concrete LOC interpretation of *behindern*, however, it is not possible to use a *that*-clause subject. As will

be discussed furthermore in Section 5.3, dispositional verbs (e.g. *verbessern*, 'improve', or *helfen*, 'help') generally license sentential subjects due to their evaluative semantics. Additionally, the explanation of the varying judgments of (33a) is supported by the fact, that the verb *verstopfen* ('obstruct') has no dispositional use which could license the subject type. Indeed, the structure in (33b) seems even less acceptable compared to (33a). Given such observations, the availability of clausal subjects is indeed a difference between EO verbs and LOC verbs. Again, however, this difference does not affect the assessment made in the present section, namely, that both EO and LOC can express instances of stative causation. The main argument here is that the reference to sentential stimuli is an EO-verb-specific property. Recall that we find cases of low compatibility with *that*-clause stimuli for verbs such as *faszinieren* ('fascinate') or *anwidern* ('disgust') (cf. Section 4.2). Therefore, I assume that neither the non-availability of sentential subjects for LOC verbs nor the availability of such subjects for EO verbs mean that they need to be distinguished when it comes to the expression of stative causation.

In short, it is reflected in the similar ambiguities and argument alternations that LOC and EO verbs behave quite similar. Deviations from any pattern under discussion has always concerned both verb classes and appears to be verb-specific. The most convincing similarity is the stative passive pattern available for LOC and EO verbs. It sets them apart from canonical cases of stative passivization because it includes the use of a *by*-phrase although no external argument is available. It also turned out that the properties with the potential of being true differences between LOC and EO verbs, i.e., the type of *by* PP in stative passives and the availability of sentential subjects, should have no impact on their status as stative causative predicates, which means that, although these differences are real they do not concern the issue under discussion, i.e., the elaboration of non-experiential stative causation and its proximity to stative causative EO structures. Nevertheless, the variation within the verb classes complicates the picture. In the next section I present some of the options and problems for a unifying analysis.

5.1.3. Options and problems for parallel analyses of LOC and EO verbs

In the present section, two aspects regarding the analysis of EO and LOC verbs will be discussed: first, how they could be analyzed in parallel and second, whether they express simple relations or exhibit complex lexical semantic structures involving causation. The latter issue has been addressed before for EO verbs which show indications

for both simple stative structures as well as causative semantics (cf. Section 2.2). The previous comparison tells us that a uniform treatment of LOC and EO verbs is indeed conceivable. I discuss some of the existing ideas and the associated problems the following paragraphs.

Parallel analyses of LOC/EO

Given the locative information coming from the LOC verbs it stands to reason to think of these structures as figure-ground relations as they have been proposed in Talmy (1975) for prepositional relations. What provides additional support for the idea is that, in both cases, the order of the arguments is flexible. Compare the example for a prepositional locative relation in (34) with the structures in (35) above.

(34) a. The house$_{\text{Figure}}$ is near the bike$_{\text{Ground}}$.

b. The bike$_{\text{Figure}}$ is near the house$_{\text{Ground}}$.
(Talmy 1975: 420)

(35) a. Studenten bewohnen dieses Haus. Dieses Haus bewohnen Studenten.
'Students occupy this house.'

b. Laken umhüllen die Statue. Die Statue umhüllen Laken.
'Sheets envelop the statue.'

As argued in Talmy (1975), the order in figure-ground relations depends on which argument functions as the figure or as the ground, whereby the ground serves as a reference point according to which the figure gets located. Therefore, with LOC verbs too, the orders may reflect the argument's changing function as the figure or as the ground of a relation. A verb class which builds structures very similar to such figure-ground expressions are *location-PP verbs* (Rappaport Hovav 2016). The relevant examples are given in (36).

(36) Location-PP verbs

a. The vase is sitting on the desk.

b. The statue is standing in the corner.

c. The North Channel lies to the north of the Irish Sea.

d. The city sprawls along the coastline.
(Rappaport Hovav 2016: 6)

Given the similarities between EO and LOC verbs outlined in the previous subsections, I subsume both stative EO and LOC verbs as verbs of contiguous relations, whereby one class entails a psych relation between their two participants and the other entails a spatio-configurational or locative relation. Indeed, parallel analyses of locative and psych relations have been proposed by several authors before (see Arad 1998a, Bouchard 1995, and recently, Doron To appear). According to Arad (1998a) and Bouchard (1995), for example, the only difference between LOC and EO verbs is the conceptual domain of the relation, i.e., spatial vs. psych domain. Most importantly, this difference is not reflected at the lexical-semantic or syntactic level, but rather governed by conceptual well-formedness conditions. This is best illustrated by the minimal contrasts in (37), which uses a verb that licenses both locative as well as psych uses.

(37) a. Der Isolierschaum füllt den Schacht vollständig aus. LOC
'The insulating foam fills the shaft completely.'

b. Das Familien- und Berufsleben füllt Laura vollständig aus. EXP
'The family and business life occupies Laura completely.'

Note also that there exist three-place constructions involving light verbs such as *give* or the locative *put* which may be used for psych predication too. Thus, the structures in (38) and (39) support the assumption of parallel structures in different domains of interpretation.

(38) a. give (Paul, a headache) EXP

b. give (Paul, a book) GOAL
(Arad 1998a: 12)

(39) a. put (NP, at anger) EXP

b. put (NP, on the table) THEME
(Arad 1998a: 12)

Another class of predicates that has been analyzed in parallel to stative EO verbs is verbs of providing nutrition and living (Reinhart 2003). Recall that Reinhart 2003 defines stative EO structures which show psych properties with a specific thematic feature pattern for the stimulus, i.e., '[-m]', which captures the fact that the stimulus of EO structures is unspecified for causation (which would otherwise have been included as [+/−c]) and has no implications for a mental state. It turns out that the EO stimulus is not the only thematic role with such a feature pattern. Reinhart (2003) argues that the

so-called *locative source* role selected by the Hebrew correspondents for verbs such as *support* or *sustain* qualifies for the same feature specification. See (40) for an example.

(40) ha-sade pirnes/kiyem et ha–mishpaxa.
the.field supported/sustained ACC the.family
'The field supported/sustained the family.'
(Reinhart 2003: 266)

I believe that Reinhart (2003)'s parallel between EO and *provide*-type verbs corresponds to the comparison discussed in the present section. Furthermore, the characterization as 'locative source' for the subject argument is a further indication for unification of EO and LOC structures. All in all, the similarities between the classes together with existing analyses point to the conclusion that stative EO verbs do not exhibit a unique lexical-semantic structure. Rather, the striking similarities with verbs involving locative information speaks in favor of a parallel analysis at this specific level.

Variation within LOC/EO classes: simple vs. complex semantics

The second dimension that comes into play when discussing parallel analyses of stative LOC and EO verbs is the lexical-semantic complexity of the structure type they exhibit. In fact, unifying analyses differ as to whether causation is involved or not. An example for a unifying causative analyses for LOC and EO verbs is Rothmayr (2009)'s proposal for the structures' semantics, which is demonstrated in (41) and (42).

(41) a. Die Haare verstopfen den Abfluß. LOC
'Hair obstructs the drain.'

b. λy λx λs CAUSE(x, obstructs(y))(s) (hair) (drain)
= λs CAUSE(hair, obstructs(drain))(s)
(Rothmayr 2009: 47)

(42) a. Daß die Irmi im Lotto gewonnen hat, ärgert den Poldi. EO
'It annoys Poldi that Irmi had won the lottery.'

b. λy λx λs CAUSE(x, annoys(y))(s) (Irmi-wins-in-lottery) (Poldi)
= λs CAUSE(Irmi-wins-lottery, annoys(Poldi))(s)
(Rothmayr 2009: 65)

What these verbs have in common, according to Rothmayr (2009)'s analysis, is that some effect component is part of their lexical semantics, which justifies the cause operator combining the stimulus with the experiential state. In both cases two eventualities

are related via stative causation. In fact, "[t]he only difference between the two is that in one case, the object is in a certain state (...), whereas in the other one, the object experiences a certain feeling" (Rothmayr 2009: 107). Note that, in their stative use, the verb's semantics only involves a CAUSE operator. In this approach the operator alone does not trigger an implication of dynamicity of some kind. Dynamicity is only implied under the presence of a BECOME operator, which is a general option for these verbs, as it generates the respective eventive versions that LOC and EO verbs often have. For comparison, the examples in (43) and (44) illustrate how simple non-causative stative verbs are analyzed under this approach.

(43) The simple semantics of ES verbs

a. Die Irmi liebt dieses Buch.
the Irmi loves this book
'Irmi loves this book.'

b. λy λx λs love(x, y) (s) (Irmi) (book)
= λs love(Irmi, book) (s)
(Rothmayr 2009: 122)

(44) The simple semantics of dative EO verbs

a. Das Lied gefällt der Irmi.
the song appeals to the Irmi
'The song appeals to Irmi.'

b. λy λx λs appeals-to(x, y) (s) (song) (Irmi)
= λs appeals-to(song, Irmi)(s)
(Rothmayr 2009: 130)

Rapp (1996)'s analysis of stative passives implies that LOC and EO verbs differ in complexity, i.e., EO verbs are causative, whereas LOC verbs denote simple relations. The contrast is illustrated in (45). Furthermore, the structure in (45c) provides an example for a canonical causative verb.

(45) a. *bewohnen*/*umgeben* ('inhabit/surround'): LOC(x,y)

b. *begeistern*/*stören* ('impress/bother'): CAUSE(x, <BEC/DEV> (PSYCH (y,x)))

c. *leeren* ('to empty'): CAUSE(DO(x, y), DEV(BE(y)))
(Rapp 1996: 246-247, Rapp 1997)

The notational conventions are the following: DEV/BEC denote resultatives; DEV is gradual, BEC indicates a sudden coming-about of the result state (i.e. process/change-of-state distinction). The operator CAUSE associates the causal event with a change of state.

The comparison of the semantic structures of LOC, EO and causative verbs reveals that, similar to the approaches mentioned above, LOC and EO verbs differ with respect to the conceptual nature of the stative meaning component (LOC state and PSYCH state). In contrast, however, EO verbs are more complex than LOC verbs due to the presence of causative semantics. At the same time, EO verbs are less complex than canonical causative verbs.[4]

So far, the parallel behavior of EO and LOC verbs points to a uniform analysis. However, the previous discussion also gives the impression that when it comes to the type of analysis, we deal with different options. Specifically, there is disagreement as to whether causation is involved or not. This in itself already indicates that we have a rather mixed situation within either class. Further arguments for such a mixed picture will be outlined in the following.

I will start with the idea of simple LOC analyses. The availability of stative passives has been included as a shared feature of EO as well as LOC verbs in the previous section. Following Gehrke (2011)'s condition for stative passive formation, "[o]nly verbs that lexically specify a consequent state derive [stative]-passives" (p. 245). Under this view, the question arises how the stative passive could be licensed at all with verbs denoting simple stative non-causative relations, also given the fact that purely stative verbs such as *see* with a simple lexical-semantic structures such as *SEE(x,y)* indeed prohibit regular stative passivization; see example (46).

(46) * Laura ist gesehen.
Laura is seen

Moreover, it seems that many of the LOC verbs do not involve pure locative information. Consider Kratzer (2000)'s example for stative causation expressed by the verb *obstruct* in (47).

(47) Tissue obstructs the blood vessel.

The interpretation includes at least two inferences: first, tissue and blood vessel are in a LOC relation or certain spatial configuration, and second, the blood vessel is inaccessible or inoperative. The latter inference could constitute the relevant result semantics required for the stative passive licensing. Nevertheless, I assume that the class of LOC

[4] Rapp (1996) uses *bewohnen* ('inhabit') as an example for a verb expressing a simple ("einphasigen") locative state, which licenses stative passives, and she does not generalize over the whole class. Therefore, the explicit link to the class of LOC verbs is mine, and I assume that this analysis can be applied to a number of other LOC verbs that have been discussed in this section.

verbs shows relevant variation when it comes to the "assertiveness" of such a result state, and this also interacts with contextual factors. For example, as shown in (48), a purely locative interpretation is best achieved using indefinites subjects, which triggers a kind of setting description (also called 'thetic' or 'topicless' sentences).

(48) Ich kam an und sah, wie schön alles war: Schnee bedeckte das Dach, Kugeln schmückten den Eingang, Kerzenlicht durchflutete den Wintergarten … .
'I arrived and saw how beautiful it was: snow covered the roof, ornaments decorated the doorway, candle light suffused the winter garden … .'

It seems that the corresponding structures with definite subjects give advantange for resultative readings, as in (49). The existence of the individuals, and the possible existence of a relation between them, has already been established.

(49) a. Der Schnee bedeckte das Dach.
'The snow covered the roof.'

b. Die Kugeln schmückten den Eingang.
'The ornaments decorated the doorway.'

c. Das Kerzenlicht durchflutete den Wintergarten.
'The candle light flooded the winter garden'

The structure in (49c), for example, appears to say something about state of the winter garden beyond a simple locative relation, e.g., the garden being brightly illuminated. Stronger evidence for this effect of definiteness is provided in Maienborn & Herdtfelder (2015: 166): they argue stative causation involving tropes induces certain inferences. To illustrate this, consider example (50).

(50) Der Platz ist weiß von den Hagelkörnern.
'The square is white from the hailstones.'
(Maienborn & Herdtfelder 2015: 164)

In addition to the locative relation, i.e., that the hailstones rest on the square, there is an inference saying that the square is white as the result of a property transfer of the internal argument's property to the subject. Moreover, with what Maienborn & Herdtfelder (2015) call "holistic effect", the impression is created that the resultant property applies to the object as a whole and not only to parts of it. In (50), for example, the hailstones are distributed all over the square.

A potential result component I want to address briefly is that many of the LOC verbs seem to allow implications concerning modalities associated with the object. I have

already mentioned above that *obstruct* also means that something is inaccessible or inoperative. Another example is *bedecken* ('cover'): the concrete locative information is that *x* is on top of *y*, whereas an additional, more abstract inference is that you cannot see, access or use *y* anymore. Thus, these verbs encode relational and modal entailments, with the latter serving as a potential result of a static relation. Note that the implication induced by LOC verbs often seems to be along the lines of *accessibility*, i.e., resulting properties such as *(in-)visible*, *(in-)approachable*, *(in-)vulnerable* or *(un-)usable* all reflect different manners of (in-)accessibility. Some examples are given in (51).

(51) a. *surround*/*enclose*: x is around y and y is inaccessible

b. *separate*/*connect*: x sets apart y_{PL}, and y as a whole is (in-)accessible

Additionally, there are cases, in which the entailment consists rather of some property of the object. For example 'decorate' requires a locative relation of some kind in order to *make sth. look nice*. As will be discussed in Section 5.3, similar types of abstract result components based on concrete relations are encoded by dispositional verbs. To sum up, the availability of stative passives and the semantics beyond simple locative relations cast doubts on simple analyses of the type LOC(x,y). Generally, when it comes to the incorporation of these implications into the lexical semantics of LOC verbs and the licensing mechanisms of stative passives, a more elaborated approach is required.

Coming from a different perspective, an observation that challenges the complex analysis for EO verbs is that there is a number of morphologically simple EO verbs that do not license the stative passive. These cases are repeated in (52).

(52) * Das Publikum ist geängstigt/ geärgert/ geekelt/ gestört/ gewundert.
the audience is frightened angered disgusted disturbed wondered

This indicates that, as such, this EO subclass does not involve the relevant result state and rather denotes a simple stative relation. Nevertheless these verbs constitute a regular member of the stative EO verb class. In this respect, note that the class of LOC verbs in German shows similar morphological richness, as most of them contain resultative morphemes. An example is given in (53).[5]

[5]More examples for the morphological complexity of LOC verbs are *aus-* ('out') in *ausfüllen* ('fill'), *ausleuchten* ('light up'); *ein-* in *eingrenzen* ('enclose'), *einrahmen* ('frame'); *über-* in *überdecken* ('mask'), *überziehen* ('plate'); *um-* in *umrahmen* ('border'), *umringen* ('surround') or *ver-* as in *verbinden* ('connect'), *verstopfen* ('obstruct'). In contrast to the EO verbs, many of them have a particle status instead of being structurally dependent prefixes. Both types of pre-verbs, however, can induce a resultative nature, one being less accessible for structural decomposition (cf. Van Kemenade & Los 2003).

(53) Schneemassen *schneiden* das Dorf vom Rest der Welt *ab*.
snow.masses cut the village of.the rest the world off
'Snow masses cut off the village from the rest of the world.'

Thus, when it comes to the presence of a result state, the properties of LOC and EO verbs reflect mixed circumstances: there are instances that indicate a simple stative relation between individuals, and, on the other hand, many cases involve a result implication for the internal argument's state of mind or being. Whatever the nature of the result component may be, it legitimizes the formation of result-based stative passives as well as the realization of the *von* PP.

All things considered, it appears that both LOC and EO verbs exhibit different structures that match the simple predication approach as well as stative causative analyses which involve the causing of result states. For example, in the class of LOC verbs *verstopfen* ('obstruct') and *blockieren* ('block') have strong result implications, whereas a verb like *umgeben* ('surround') is non-resultative. Another contrast exists between different instances of *covering*, such as between *bedecken* ('cover') and *verdecken* ('cover/obscure'), the latter being more obvious in having result-implications. Within the class of EO verbs, *ärgern* ('anger') and *wundern* ('wonder') build simple rather than resultative structures, as opposed to *verärgern* ('annoy') and *verwundern* ('astonish'). Further research needs to be done, especially when it comes to the relevance of the result implications.

A note on psych properties

The previous considerations speak against EO-verb-specific lexical-semantic structure types. As a consequence, the problem of psych properties should be solved outside the extended lexical-semantic domain, which speaks in favor of EO verb analyses that derive psych properties "on top" of the basic argument structure and syntax of the verbs (cf. Section 2.2). However, we should not rush to conclusion here, as a parallel of EO and LOC verbs also offers the possibility that LOC verbs too exhibit what has been called 'psych' properties. I will briefly comment on the properties that have been discussed in the present work, i.e., exceptional flexible linearization and exceptional backward binding.

The experiments in Section 3.1 proved that EO verbs license an accusative-before-nominative (ACC < NOM) argument order more easily in contrast to canonical causative verbs. As mentioned before in comparison to figure-ground configurations, LOC verb also seem to allow for a relatively free argument realization. Examples that illustrate

such a flexibility are provided, once again, in (54).

(54) EO verbs

a. Laken umhüllen die Statue. NOM < ACC
Die Statue umhüllen Laken. ACC < NOM
'Colors fascinate Laura.'

b. Laken bedecken die Möbel. NOM < ACC
Die Möbel bedecken Laken. ACC < NOM
'Sheets cover the furniture.'

However, the examples are not controlled for a possible influence of the subject's definiteness. It has been noted previously that stative LOC verbs show strong preferences when it comes to the referential status of their subject DP. Their preference for indefinite subjects, however, also licenses ACC < NOM orders via the givenness of the object. For the evaluation the argument order flexibility under conditions identical to EO verbs, consider examples (55). Assume that these structures all follow the same kind of neutral context, i.e., with both arguments presupposed and a V-accent.

(55) ACC < NOM orders

a. weil den Zuschauer die Musik ziemlich fasziniert hat EO
because the viewer.ACC the music.NOM very delighted has

b. ? weil den Zuschauer die Decke vollständig bedeckt hat. LOC
because the body.ACC the blanket.NOM completely covered has

Based on this comparison it is difficult to decide whether the examples show a weakening of the ACC < NOM order freedom for LOC verbs in contrast to EO verbs. Therefore, and also following the discussion in the present section, it is worth testing this special class of verbs, combined with the verbs tested in (3.1), in order to ascertain whether argument order flexibility is a psych-specific property.

As for Backward Binding, there is one indication for it being a property that does not necessarily only concern psych verbs (Landau 2010's *peripheral psych properties*). Reinhart (2003) predicts that structures license Backward Binding once they have the same thematic feature specification as stative EO structures involving subject matter stimuli. As introduced before, Hebrew *provide*-type verbs select very similar subjects. Given the example in (56), they indeed license non-experiential Backward Binding compared to their causative counterpart.

(56) Backward Binding

a. ha-sandwich shelo$_i$ hezin (kol yeled)$_i$ bemeshex shavu'a.
the-sandwich his nourished every child during week
'His sandwich nourished every child for a week.'

b. */? ima shelo$_i$ hezina (kol yeled)$_i$ bemeshex shavu'a.
mother his nourished every child during week
'His mother nourished every child for a week.'
(Reinhart 2003: 268)

The structure in (56a) contains a *source* argument which has the same thematic specification as a subject matter argument of stative EO verbs. By contrast, (56b) contains a causing agent (*his mother*). As with EO verbs, the presence of such an argument prohibits Backward Binding. This is an interesting observation which, I believe, requires empirical backup. For example, in parallel to the study in Section 3.2. Two questions are relevant here: first, whether the Backward Binding contrast in (56) can be confirmed at all and whether this generalization holds for the class of LOC verbs discussed in the present section. For now, however, based on the brief discussion and previous observations in the literature, I will assume that the stative causative nature of verbs is not responsible for licensing psych properties.

So far, following the line of research on stative causation, there is no reason to assume a specific lexical-semantic configuration for stative EO structures. Despite variation within the conceptually defined verb classes, LOC verbs show very similar behavior. The only difference is the interpretational domain in which these verbs are relevant, i.e., the psych or locative non-psych domain.

5.1.4. Section summary

The leading question of this is section was whether the same structure type underlies LOC and EO verbs, which have both been characterized as predicates that can express stative causation. The discussion revealed similarities, differences as well as a number of open questions. As for the similarities, verbs of both classes may denote abstract states involving two concurrent states. They exhibit stative/eventive ambiguities and have a stative use that lacks an external argument. In contrast to other causative predicates, they license stative passives with *von* PPs attached that take up the subject argument of the active use. Additionally, this is a type of passive that expresses a simultaneity relation between the two arguments. Moreover, the verbs share all of these properties with stative trope causation. There are exceptions for some generalizations, i.e., not all of the verb license all the discussed operations. These indicate variation within the

classes and need to be evaluated individually.

The alleged main differences between LOC and EO structures have been the status of the *von* PP in stative passives (V'/VP adjunct) as well as the type of subject EO and LOC verbs may license. Both properties have been argued to have no relevance at this level of lexical-semantic conception. Therefore, the differences are not sufficient to reject the idea that structures of non-experiential stative causation involving LOC verbs and stative EO structures have the same underlying lexical-semantic structure.

As a result of the comparison, although both classes are not homogeneous when it comes to the the potential morphosyntactic operations they license, the close relationship between EO and LOC verbs comes from the fact that they can build stative causative structures, i.e., concomitant causal relations without the presence of an external causer. Naturally, the remaining difference is the conceptual domain of these verbs, i.e., psych and non-psych.

The section left some unresolved issues. First and foremost, in view of the motivation for psych verb research we are in need of an experimental investigation of psych properties with non-experiential verbs which are closely related to stative EO verbs and exhibit the same lexical-semantic structures, e.g., Backward Binding with Hebrew verbs of nutrition or flexible argument order with German LOC verbs.

A second point of discussion is the potential lexical-semantic representation of the verbs discussed in this section, specifically, what the nature of the resultative component with LOC could be: does it have to be a lexical-semantic result component (i.e. *be covered*, *be surrounded*, etc.) or could it also be a contextually driven inference or lexical entailment (e.g., completeness, inaccessibility)? Moreover, LOC verbs sometimes appear to express simple stative relations which rather correspond to figure-ground relations. Thus, the question is whether there are different lexical-semantic structure types at play. Recall also that the characterization of stative EO verbs as causative predicates also ran into problems before. Recall that, the main objection to causative analyses has been that some EO verbs can express non-contiguous relations (cf. Section 4.1). Indeed, it would be favorable to keep the contiguity of eventualities as one requirement for stative causation. The following sections will suggest that we can maintain this characterization for EO verbs, if we allow exceptions, namely, that in some cases, EO structures do not constitute instances of stative causation but express attitudes and evaluations of the experiencer.

Stative causation with EO and locative (LOC) verbs

i. EO verbs are not in a unique position when it comes to the expression of stative causation. Given the similarities between EO and LOC or *obstruct*-type verbs, this lexical-semantic structure type exists in the psych as well as the non-psych domain.

ii. Some EO verbs are not considered because they may encode non-contiguous stimulus-experiencer relations and lack the ability for stative passive formation. Thus, stative causation does not cover the full range of stative EO structures.

5.2. EO verbs, propositional arguments and p-attitude verbs

The goal of the present chapter is to investigate predicates that behave similar to EO verbs in central aspects and to discuss what this may tell us about the general nature of EO verbs on the one hand, and about their special features on the other hand. The previous section examined cases of non-experiential stative causation mainly using the verbs' passive licensing pattern as the comparative value. In the present section and the sections following this one, I focus on the factive-evaluative nature of EO verbs and compare them with related non-experiential structures. The starting point here is the selection of clausal arguments, and sentential subjects in particular. At first, I address the EO verbs' factivity and their status as attitude predicates. The discussion will show that what speaks against causative analyses of (a subclass of) stative EO structures finds an explanation in the domain of attitude and evaluation.

As shown in Chapter 4, EO verbs that license clausal arguments semantically behave like factive verbs, as they presuppose the truth of the embedded presupposition. They share this property with a subclass of propositional attitude verbs (henceforth p-attitude verbs). Consider (57) for examples showing non-factive and factive p-attitude verbs in comparison with EO structures.

(57) a. She believes/reports/claims *that he is naked.* NON-FACTIVE P-ATTITUDES

b. She regrets/realizes/knows *that he is naked.* FACTIVE P-ATTITUDES

c. *That he is naked* surprises/annoys/amuses her. FACTIVE EO

For the evaluation of the factive nature of the verbs recall that factive presuppositions typically remain stable under the negation of the main proposition. The role of factivity in experiential and non-experiential contexts will be addressed in Section 5.2.1.

The occurrence of *that*-clause arguments is also associated with meaning dependencies from non-actual worlds. As argued in Parsons (1997), *that*-clauses are structural indicators of meaning sensitivity, which means that the truth of the main proposition depends on the actual meaning of terms embedded in the *that*-clause proposition. Example (58) illustrates this.

(58) a. Dass der Weihnachtsmann vor der Tür steht, verunsichert/verwundert Laura.
'That Santa Claus is at the door upsets/astonishes Laura.'

b. Dass ihr Onkel vor der Tür steht, verunsichert/verwundert Laura.
'That her uncle is at the door upsets/astonishes Laura.'

Assume the nominals *Santa Claus* in (58a) and *her uncle* in (58b) are co-extensive. Nevertheless, replacing them leads to a change in truth conditions, as the actual meaning depends on the experiencers perspective. The p-attitude and EO verbs' meaning dependencies are the topic of Section 5.2.2. In line with the observations in the previous chapter, it turns out that the causal and attitudinal semantics of EO verbs indeed qualify for different EO structure types. This idea will be introduced in Section 5.2.3, before summarizing the findings in Section 5.2.4.

5.2.1. P-attitudes and factivity

In the context of the characterization of referential properties of EO structure stimuli, it became apparent that some of them are propositional rather than eventive. In the study of language, a number of subtypes of propositional arguments have been identified, for example, facts, states of affairs or possibilities (cf. Asher 1993, among many others). A more specific characterization may not be necessary in each and every case, but as it is known to have some logical and structural reflexes, I follow the previous characterization and take into account that EO verbs typically belong to the class of factive predicates.

As a general definition, a predicate is factive in case it presupposes the truth of its propositional complement. Thus, in order for such expressions to be meaningful, the embedded proposition needs to be true. Compare (59a) and (59b) for a contrast between well-known non-factive and factive p-attitude verbs and consider (59c) for the respective assessment of EO verbs.

(59) a. Laura believes that Peter is married. NON-FACTIVE

b. Laura knows that Peter is married. FACTIVE

c. That Peter is married surprised/annoy/delighted Laura. FACTIVE EO

The truth of a sentence containing the non-factive verb *believe* is independent of the truth of its complement, which means that the sentence in (59a) can be true in the case that Peter is not married. This is not the case for factive verbs such as *know* or for EO verbs, i.e., in order for *Laura knows/is surprised about p* to be meaningful, it must be true that Peter is married. Thus, in this respect fact-selecting EO verbs are similar to factive p-attitude verbs. Further examples for factive p-attitude verbs are *realize* or *be aware*; other non-factive p-attitude verbs are *think* or *assume*.

The elaboration of factive predicates in previous research revealed an even finer-grained picture, namely, within the class of factive p-attitude verbs, one can distinguish different types of factive predicates. The most famous distinction is the one between semi- and true factive verbs (cf. Karttunen 1971b), which sometimes has been associated with different notions of presupposition, i.e., pragmatic vs. logical/semantic presupposition (e.g. Keenan 1971 and Norrick 1978). Logically factive presuppositions are a type of presupposition which has its source "built into the semantic structure of the verb" (Norrick 1978: 14).[6]

The main reason for such sub-divisions is that the truth of true factive presuppositions appears to be stabile under circumstances in which semi-factive presuppositions do not remain stable. First, consider example (60) which shows that the presupposition of both verbs *regret* and *realize* holds under negation, which makes them factive.

(60) a. I didn't regret that I have not told the truth → I have not told the truth.

[6] A similar type of "built-in" presupposition comes with so called *implicative verbs* ((Karttunen 1971a). For example, if structures containing the verbs *manage*, *remember* or *condescend* are true, it is understood that someone *tried to*, *intended to/was obligated to* and *was asked to/whether*. In contrast to factive verbs, they do not presuppose the truth of a proposition but imply other necessary or sufficient preconditions.

b. I didn't realize that I have not told the truth. → I have not told the truth.
(Karttunen 1971b: 64)

The test of the same presupposition in conditional contexts in (61), however, reveals a contrast between the verbs.

(61) a. If I regret later that I have not told the truth, I will confess it to everyone. → I have not told the truth.

b. If I realize later that I have not told the truth, I will confess it to everyone. ↛ I have not told the truth.
(Karttunen 1971b: 64)

The respective implications show that *regret* but not *realize* keep their presupposition in conditional structures, which defines the former as a truly factive verb while the latter is semi-factive. The application of these tests to EO structures in (62) demonstrates that EO verbs belong to the class of truly factive verbs.

(62) a. It does not annoy/delight/bother me that I have not told the truth. → I have not told the truth.

b. If it annoys/delights/bothers me later that I have not told the truth, I will confess it to everyone. → I have not told the truth.

Such a stability of factivity was taken as evidence for the idea that this type of presupposition is a basic lexical property of the verb and that it does not dependent on contextual conditions such as discourse or speaker- and hearer-related states of knowledge, which are possible triggers for pragmatic presuppositions (e.g. Norrick 1978).

What is interesting, but perhaps not surprising given the idea of factivity as a lexical-conceptual property, the class of truly factive verbs with logical factive presuppositions has been referred to as 'cognitive-emotive' or 'emotive-evaluative' verbs (e.g. Iwata 1988, Postal 1972, Norrick 1978). This is largely because emotive-evaluative verbs involve an emotional reaction or attitude towards the given state of affairs additional to the necessary cognitive step which is also present in the semantics of cognitive-factive verbs such as *realize* or *know*. For experimental support for the distinction between cognitive-only and emotive-evaluative factive verbs, see Djärv et al. (2016). In short, the observations show that EO verbs behave like fully factive and emotive p-attitude verbs. In the following, I discuss further implications for the evaluation of the truth conditions of experiential statements.

5.2.2. Meaning-dependencies in p-attitude and EO structures

I pointed out in the previous subsection that p-attitude verbs cover all types of factivity, i.e., the proposition can be to believed or known (non-factive and semi-factive) or be regretted or admired (fully factive). Moreover, it has been shown that EO verbs behave like fully factive p-attitudinal predicates. P-attitude reports are typically analyzed as statements that depend on an individual's state of knowledge, i.e., the set of worlds we look at in order to evaluate the meaning of such a statement is restricted relative to the attitude holders' beliefs. This brings into play the notion of modality. The former characterization of EO verbs in parallel to p-attitude verbs indicates that modality is relevant for experiential statements too. In order to delimit structures for which modality is a relevant concept, Kiefer (1994) argues that, in contrast to regular p-attitude constructions, factive evaluative predicates such as *is good/bad* or *is amazing* are non-modal. Examples for such structures are provided in (63).

(63) a. Laura believes/knows that her neighbor is married. P-ATTITUDE
b. It is amazing/good that Laura passed the exam. FACTIVE-EVALUATIVE

This contrast evolves because factive evaluative statements such as in (63b) "comment on, or evaluate, an aspect of the world that *is*, rather than of some world that might be or might have been" (Kiefer 1994: 2515). Given this characterization, it is not obvious whether truly factive EO verbs such as *amaze* could indeed be analyzed as genuine attitude verbs. The following paragraphs reflect on this question and show that EO structures nevertheless show meaning dependencies of this kind.

Modal and non-modal uses of EO verbs

The previous considerations indicate that EO verbs do not form statements about possible worlds with truth values which depend on an attitude holder. However, given the contrast in (64), this assessment appears to depend on whether they are used as p-attitude or as causative predicates. Both uses are exemplified in (64) for the French equivalent of *erstaunen* ('astonish').

(64) a. Je m'étonne *qu*'on ne me réponde pas. ATTITUDINAL
'I am astonished that I do not get an answer.'
b. Je m'étonne *de ce qu*'on ne me répond pas. CAUSATIVE
'I am astonished about the fact that I do not get an answer.'
(Kiefer 1994: 2516)

Note that French has the advantage that the difference is structurally visible: both connectors used in these examples *de ce que* ('about that') and *que* ('that') introduce propositions, but only the former implies causality. Following Kiefer (1994)'s view on modality and modal predicates, only the structure in (64a) involves modality and constitutes a p-attitude statement. By contrast, (64b) is non-modal and denotes an attitudinal state which was brought about by a stimulus, i.e., it establishes a causal relation between a state of affairs and an attitude holder. As will be shown in the following parts of the section, the alleged causal use may nevertheless depend on the experiencer's beliefs.

As a preliminary result, according to Kiefer 1994's views on modality, there appears to be a modal use of EO verbs as long as we set apart the p-attitude use from the corresponding causal use of the verb. Irrespective of modality and given the previous debate about the relevance of causality in EO structures, this is an interesting perspective that furthermore points to different lexical-semantic structures formed by stative EO verbs. The two semantic structures are exemplified for *astonish* in (65).

(65) a. $[\![\text{astonish}]\!]^{w,g} = \lambda p_{\langle s,t\rangle}.\lambda x.\forall w'$compatible with what x is astonished about in w: p(w')=1

b. $[\![\text{astonish}]\!] = \lambda y\ \lambda x\ \lambda s$ CAUSE(x, astonished(y))(s)

While (65a) is a simple representation of the semantics of a p-attitude verb, (65b) illustrates the causative analysis of a stative EO verb inspired by Rothmayr (2009). In the latter case, *x* would stand for a stimulus with a propositional core encoded by the clausal argument.[7]

If we look at the examples in (64) again, the similarities of the structures also indicate that there can only be a fine line between the alleged modal and non-modal uses when it comes to EO verbs, which immediately suggests the question of how this difference could come about. Note, for example, that it is indicated by the translations

[7] Note that the analysis and the modal status of p-attitude reports is not uncontroversial. Approaches assuming that the meaning of p-attitudes can be captured by possible-world semantics relate a structurally present individual to a set of possible worlds. This was originally proposed in Hintikka (1969). However, the exact nature of the relation between attitudes and modality is difficult to translate. To give an impression of how such a link could look like, compare the structures in (i), which exemplify an explicit translation of a p-attitude report by modal expressions.

(i) a. *Robin suspects that the butler is guilty.* P-ATTITUDE

b. *Given Robin's evidence, the butler might be guilty.* MODAL TRANSLATION
(von Fintel 2006: ex. 26-27)

of the contrasting structures that this distinction is not by accident accompanied by a distinction between *that* and *the fact that*. In the following, I demonstrate in what way EO structures are meaning-dependent and I discuss aspects which could be responsible assessment of contrasts such as in (65).

Meaning dependencies in EO structures

What makes the role of modality (i.e. the look at non-actual worlds) rather difficult to determine for reports of attitude, experience or evaluation is the involvement of a mental domain that has to be considered for capturing the meaning of a sentence. One crucial effect is the emergence of opaque environments. P-attitude verbs are known to create opaque environments, which means that, usually, one could not replace a DP with a coextensive term without changing the validity of the general proposition. This effect arises due to a possible change of the evaluation world. Either we look at the attitude holder's belief or we look at what we know independently. A case of opacity with traditional p-attitude verbs is demonstrated in (66).

(66) a. Laura realisiert/hofft, dass der Weihnachtsmann vor der Tür steht.
'Laura realizes/hopes that Santa Claus is at the door.'

b. Laura realisiert/hofft, dass ihr Onkel vor der Tür steht.
'Laura realizes/hopes that her uncle is at the door.'

If we assume that Santa Claus is Laura's uncle, (66b) only follows from (66a) in case we do not consider Laura's state of mind. If we consider Laura's perspective, however, we cannot simply take one sentence for the other, as she might not be aware of Santa Claus's alter ego. The same effect has already been established in Section 4.2.2 for EO verbs and is illustrated once again in (67). For the relevant evaluation, apply the argumentation of example (66).

(67) a. Dass der Weihnachtsmann vor der Tür steht, verunsichert/verwundert Laura.
'That Santa Claus is at the door upsets/astonishes Laura.'

b. Dass ihr Onkel vor der Tür steht, verunsichert/verwundert Laura.
'That her uncle is at the door upsets/astonishes Laura.'

Simply put, the two structures are not necessarily true at the same time. The identification of the intensional character of such EO structure stimuli led to the conclusion that they are abstract propositional instead of event-denoting entities, i.e., things that

happen and have an extension. So far this shows that meaning dependencies indeed play a role for regular EO structures such as in (58b). More precisely, the presence of experiencers leads to environments in which the meaning may depend on something else than the actual objectively accessible world. As a consequence, the only thing we know for sure and which can be evaluated in the actual world is the existence of the experiencer her- or himself. We can find similar situations in reports of intention such as (68).

(68) Jones hit Smith intentionally.
(Aune 1977: 90)

Here as well the intended meaning of a statement strongly depends on a non-1st person individual within the structure, whereby, this time, it would thematically be characterized as a typical agent instead of an experiencer. Thus, in order to manifest the meaning of the object referent, we have to look at the agent's intentions. Again, the object referent cannot necessarily be replaced without changing the truth conditions of the sentence. For example, if everyone but Jones knows that Smith is a champion in badminton, the sentence *Jones hit the badminton champion intentionally* is not true even if *Smith* and *the badminton champion* refer to the same person and, therefore, have the same extension. Aune (1977) calls these structures *quasi-intensional*, as they have both logical properties of intensional as well as extensional statements. That is, while the subject individual Jones exists and is the "anchor" to the actual world, *Smith* is a concept the meaning of which depends on Jones, a structurally implemented individual. In general, both agents and experiencers (also as attitude holders) count as intentional individuals, i.e., individuals which are capable of mentally representing entities, eventualities and/or states of affairs. As such, they are crucial participants of structures the meaning of which depends on an individual's conception of things, apart from the accessible actual world. In the following, I examine under what circumstances such meaning dependencies hold.

EO structures and speaker commitment

An effect that arises from the meaning dependencies in attitudinal or experiential contexts is the potential lack of speaker commitment. In principle, modality is often taken to be concerned with the speaker's orientation, as it "can (…) be defined as the speaker's cognitive, emotive, or volitive attitude toward a state of affairs" (Kiefer 1994: 2516). Therefore, rather straightforward signals for modality are modal adverbs (possibly/

probably) or modal verbs (may/should), as in *Laura might/could/should not get an answer*. The constitution of p-attitude or EO reports differs from such cases of speaker commitment, in such a way that the attitude holder is involved in the structure and the state of affairs that she or he may have an attitude towards is encoded as an embedded proposition. Under non-1st person experience, as in (69), a speaker may nevertheless be involved as she or he reports the situation.

(69) Laura is obviously astonished that she does not get an answer.

In one reading, the structure can be understood in such a way that the speaker is skeptical and does not share the experiencer's view. The commitment using *obviously* evaluates Lauras (wrong) expectation that she would get an answer. Therefore, it could be followed by a comment such as *I am not*.[8] However, this exemplifies (non-)commitment to the experiencer's expectations and judgments, i.e., to the main proposition instead of the embedded proposition. When it comes to the embedded proposition *she does not get an answer*, the speaker role in EO statements is rather restricted. For cognitive (non-emotive) p-attitude verbs such as *know* or *realize*, there seems to be a way for asserting speakers to access the embedded proposition. Compare the examples in (70) and (71), respectively.

(70) a. Laura *knows* that she does not get an answer.
b. Laura *believes* that she does not get an answer.

(71) a. Laura *realizes* that she does not get an answer.
b. Laura *assumes* that she does not get an answer.

As argued in Norrick (1978), p-attitude verbs differ as to whether they make way for speaker commitment or not. The contrasts in (70) and (71) show how some cognitive p-attitude concepts allow the speaker to chose from a set of verbs in order to express their own position towards the embedded proposition. For example, (70b) but not (70a) can be interpreted in such a way that the speaker has doubts regarding the truth of the embedded proposition. If the speaker does not question the proposition in this scenario, the hearer can expect her or him to choose *know* instead of *believe*. It works the same way for the contrast in (71). Such a type of commitment is not possible for factive emotive p-attitude verbs such as *regret* or *admire*, or for EO structures, which belong

[8] The evidential reading, i.e., that the speaker has relatively strong evidence for asserting Laura's astonishment, is another possible reading, but not the intended use here.

to this class by definition. These verbs only offer the option to report the experiencer's perspective or they require the full commitment of the speaker. Naturally, inevitable commitment (or acceptance) is a general effect of factivity, as the whole report presupposes the the truth of the proposition.

Although, I will not go deeper into the pragmatic conditions of EO statements now, the consideration of the non-experiential speaker's perspective might give a hint as to why certain EO uses can be seen as non-dependent on the experiencer in the strict sense. To illustrate this, consider the examples in (72), which introduce a non-experiential speaker. For the intended reading of the structures, assume that in the actual world, the embedded proposition is *not* true and that the independent speaker knows that.

(72) a. Ich glaube, Laura ärgerte, dass die Steuern erhöht wurden.
'Laura was annoyed that the taxes were raised.'

b. # Ich glaube, dass die Steuern erhöht wurden, ärgerte Laura.
'I believe, that the taxes were raised, annoyed Laura.'

Assuming that the non-experiential speaker knows they did not raise the taxes in the utterance world, she or he may use the structure in (72a) but not the one in (72b) to express Lauras attitude. The two structures differ with respect to the syntactic position of the proposition, and it seems that using the clausal argument in the pre-field requires commitment to the truth, whereas extraposed CPs allow for the speaker's belief to be independent from the (false) assumptions of the experiencer. Thus, (72b) is odd due to a mismatch between the knowledge of the speaker about the actual world and the commitment options provided by the syntactic form of the EO statement. Similar effects arise in hypothetical environments such as dream contexts. Compare the structures in (73).

(73) a. Ich habe geträumt, dass [dass Laura ein Kaninchen ist], mich überrascht/ärgert.
'I dreamt that, that Laura is a rabbit surprises/annoys me.'

b. Ich habe geträumt, dass es mich überrascht/ärgert, [dass Laura ein Kaninchen ist].
'I dreamt that I am surprised/annoyed that Laura is a rabbit.'

The version in (73b) requires the truth of the embedded proposition in the dream world at most, whereas with a prefield proposition, as in (73a), the fact also needs to hold in the actual world. Note that, naturally, these structural variants are associated with

information structural functions. The examples in (74) take up the pre-field/extraposed uses of CP-stimuli and relate them to their information structural status.

(74) a. [Dass Nina nie den Abwasch macht]$_{\text{OLD}}$, ärgert Laura.
'That Nina never does the dishes annoys Laura.'

b. Laura ärgert (es), [dass Nina nie den Abwasch macht]$_{\text{NEW}}$.
'It annoys Laura that Nina never does the dishes.'

c. Laura ÄRgert (es), [dass Nina nie den Abwasch macht]$_{\text{OLD}}$.
'It annoys Laura that Nina never does the dishes.'

In an EO structure with a prefield CP, as in (74a), the stimulus always forms a discourse-anaphoric, atomic object as a whole. In contrast, using the stimulus in extraposition, the fact can be old (74b) or new (74c): the unmarked version in (74b) constitutes the attitudinal use of EO verbs, as it has been described before. In such cases, the stimulus is a newly formed proposition in a logically factive relation to the main proposition. These are the conditions under which the speaker is free of commitment to the embedded proposition. The sentence with an extraposed clause in (74c), on the other hand, carries the main accent on the matrix verb and, again, refers to an established state of affairs.[9] As a result, the presented contexts show that the information structural status of the factive proposition changes the conditions on the validity of the proposition with respect to the evaluation world (cf. Lasersohn 2017). I would like to point out, however, that the structure type is rather marked for most EO verbs, as they generally prefer the inclusion of pro-forms such as *es* 'it' or *darüber* 'about that', which has an influences on the status of the embedded proposition. I assume that, in general, EO verbs prefer the use of established facts.

The considerations in the present subsection show that, if a speaker is involved in EO statements, the commitment options depend on the structural status of the embedded fact. Quite often, however, emotive statements are made from the experiencer's perspective, and in such cases, nominal reference depends on a sentient individual irrespective of the structural status (recall ex. 67). Thus, possible meaning dependencies in EO structures are linked to the perspective that is taken. See Section 5.4 for more details on different perspective with EO statements.

Altogether, the meaning dependencies and the conditions for speaker commitment in the presented contexts are an interesting issue that requires more attention, also

[9] This might also reflect different views on facts as atomic DPs vs. structured logically factive propositions.

regarding language-specific forms that could be relevant, e.g., different syntactic positions or the presence/absence pro-forms (e.g. *it* or *the fact*). For example, what would structures with factive object complements and sentential pro-forms (*I think Laura is annoyed about the fact that the taxes were raised*) do with the validity and accessibility of the embedded proposition. In principle, they correspond to the non-modal use of French *astonish* in (64) above. It would be worth testing it in more detail, especially concerning the general role of the syntactic realization of facts and sentential pro-forms in interaction with information structural factors.

5.2.3. A non-causal use of EO verbs?

Coming back to the possible conclusions for the semantic nature of stative EO structures, the section emphasized once again that EO verbs often show properties which do not correspond to those of canonical causative verbs. In the previous chapter, it was the EO verbs' selection of more abstract non-eventuality stimuli that allowed for distant relations between facts and the experiencer's state. Here, the close relation of EO verbs to p-attitude statements and meaning-dependencies give rise to the assumption that stative EO verbs have a use apart from stative causation, namely, as predicates of attitude or evaluation. For further illustration of this difference, consider the contrast in (75), which offers a division similar to Kiefer (1994) causal/attitudinal use of EO verbs.

(75) His nakedness offended her.
   a. She didn't care whether he was naked,
      but seeing it grossed her out.
   b. She was offended that he was naked.
      (Parsons 1997: 372)

Martin (2006) differentiates the two uses in (75) saying that (75a) has a *reaction reading* whereas (75b) has an *evaluation reading*. The example also makes obvious that the paraphrase for the reaction reading uses an event description (*seeing it*) for explicating the stimulus, whereas the stimulus of the evaluation reading is represented by a *that*-clause, which makes the interrelationship between stative EO verbs, propositional arguments and evaluation explicit. Very simplified and at decompositional level only, the two uses are summarized in (76).

(76) That Santa Claus is at the door astonishes Laura.
   a. $\text{ATT/EVAL}_{\text{astonish}}$(Laura,that-Santa-Clause-is-at-the-door)

b. CAUSE(that-Santa-Clause-is-at-the-door, astonished (Laura)) (s)

Lastly, I would like to revive a complication that has been addressed in the previous chapter: the referential potential of the *that*-clauses in stative EO structures is probably much more diverse, as there is an option that states of affairs expressed by clausal arguments may also constitute participants in a mental event, e.g., as being imagined or part of an active thought (cf. Section 4.4.3). Therefore, the stimulus in (76b) is still represented in form of a *that*-clause and not as *Santa being at the door*. Recall also that the content of these mental events or representations does not necessarily "exist" around the involved individuals but may nevertheless causally affect an experiencer. This contrasts with pure proposition-like objects that simply serve as attitudinal targets. The two options are illustrated in Figure 5.3, which is based on the illustration of the internal/external causation dichotomy that has been used previously to describe the meaning of stative EO verbs (cf. Sections 2.2.2).

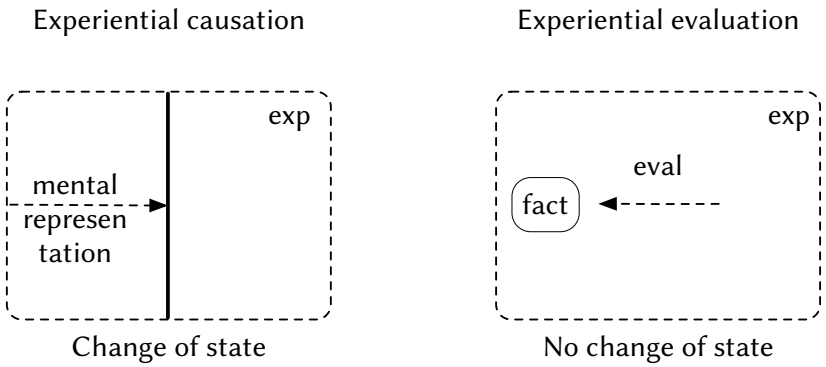


Figure 5.3.: Options for special EO structures

The figure shows both the internal stative causative use which involves a change of state or emotional reaction and the evaluative use, in which the experiencer simply assigns a value to a state of affairs. The use of stative EO verbs as evaluative predicates will be the topic of the following sections. It will shed more light on the source of non-causative EO structures.

5.2.4. Section summary

The aim of the chapter is to investigate non-EO verbs that share relevant features with EO verbs and thereby to extract facts about the nature of special stative EO structures.

Hitherto, the stative causative semantics of EO verbs served as a basis of comparison. The parallels to non-experiential stative causative structures built by *obstruct*-type (LOC) verbs or to stative trope causation suggested that all belong to the same structure type which should therefore not be responsible for psych properties exhibited by EO structures. However, there have also been observations of "non-causative behavior" of stative EO verbs, which is tied to the presence of clausal arguments. Therefore, the selection of such argument types is taken as another point of reference in the present and following sections.

The goal of the present section was to evaluate the status of stative EO structures relative to verbs of propositional attitude, which typically link propositions with attitude holders. I have pointed out that EO verbs are fully factive predicates and therefore belong to the class of cognitive-emotive p-attitude verbs, among experiencer subject verbs like *regret* and *admire*. It has also been shown that EO structures are quasi-intensional structures where the experiencer is linked to the evaluation world and the meaning of the stimulus depends on the experiencer. This is in accordance with previous assumptions about the relevance of the experiencer's role, namely, that she or he is indispensable for establishing the meaning of stative EO structures. If a non-experiential speaker is involved who reports on someones feelings, a discourse-given propositional stimulus is also linked to the evaluation world and the speaker necessarily commits to it. As for this latter point, the role of the *that*-clause requires some closer inspection and backup. For example, one could test the truth conditions for the embedded proposition, first, depending its information structural status, and second, depending on the involvement of a non-experiential speaker. In general, the findings of the section contribute to the impression that there are EO structures which express attitudes rather than causation. This idea will be further elaborated in the following sections.

EO verbs, propositional arguments and p-attitude verbs

i. EO verbs with CP-arguments behave like fully factive emotive p-attitude verbs.

ii. Stative EO structures are quasi-intensional, i.e., the actual meaning of the stimulus depends on an experiencer present in the evaluation world.

iii. Speaker-commitment depends on the perspective from which the EO statement was made as well as the discourse role of the embedded proposition.

iv. There are signs of attitudinal and evaluative uses of EO structures alongside the traditional stative causative type.

5.3. EO verbs and sentential subjects with dispositional verbs

As shown in previous chapters, EO verbs license clausal stimulus arguments which are very often encoded by nominalizations or other placeholders. This is illustrated again in (77).

(77) a. *His nakedness* offended her.
b. She was offended *that he was naked.*

In the previous section I evaluated the EO structure's status as p-attitude verbs. I propose that at least a subclass of EO verbs exhibits a non-causative reading in which the verb relates a proposition-like stimulus to an evaluating experiencer, in contrast to expressing a causal relation with an "reacting" experiencer. Now I compare EO structures with verbs that license sentential subjects but do not count as psych verbs, i.e., dispositional verbs. Ultimately, the parallels between these structures will underline the evaluative function of EO verbs.

First of all, dispositional verbs are among the verbs that exhibit stative/eventive ambiguities (Engelberg 2005, Rothmayr 2009). This has been relevant before as a property shared by EO verbs and non-experiential verbs of stative causation indicating that both verb classes are very similar nature. For more details, recall the discussion about LOC and EO verbs in Section 5.1. The ambiguity is exemplified in (78) for dispositional verbs and in (79) for EO verbs.

(78) a. Der Nachbar hilft Laura gerne. EVENTIVE
'The neighbor loves to help Laura.'
b. Dass der Nachbar ihre Pakete annimmt, hilft Laura sehr. STATIVE
'That her neighbor accepts her packages helps Laura a lot.'

(79) a. Der Nachbar nervt Laura mit Absicht. EVENTIVE
'Laura annoys Laura on purpose.'

b. Dass der Nachbar die Pakete nicht annimmt, nervt Laura sehr. STATIVE
'That the neighbor does not accept the packages annoys Laura very much.'

The fact that both EO and dispositional verbs are even more closely related when it comes to meaning and structure type is best illustrated by a pair such as in (80). Note that, a verb like *stören* ('bother/disturb') has both an EO as well as a dispositional use.

(80) a. Dass Laura sich nicht meldet stört den Chef. EO
'That Laura doesn't get in touch bothers the boss.'

b. Dass Laura sich nicht meldet stört den Ablauf. DISPOSITIONAL
'That Laura doesn't get in touch disturbs the procedure.'

In the following, I compare the two verb types particularly based on their sentential-subject licensing. Since this is linked to the evaluative nature of dispositional verbs, I presume that EO verbs too can be evaluative. First, in Section 5.3.1, I elaborate the relevant requirements and the distribution of *that*-clause subjects in order to apply the findings to stative EO structures in Section 5.3.2. In Section 5.3.3, I summarize the findings.

5.3.1. What licenses sentential subjects?

I take Engelberg (2005)'s conceptual requirements for sentential subjects in (81) as a connecting point leading the subsequent discussion.

(81) Verbs license sentential subjects if they involve…
a. dependency relations that require complex reasoning
b. and a step between two different "spheres of reality".
(Engelberg 2005: 62)

Engelberg (2005) argues that, in principle, dispositional verbs such as *gefährden* ('endanger') and *verbessern* ('improve') each contain two semantic types of relations at the same time, i.e., a causal relation between eventualities forming a chain of events in the actual world and an evaluative relation saying that one aspect of this chain is good or bad for the relevant individual or entity. Examples are given in (82); other verbs are *helfen* ('help'), *schaden* ('harm'), or *nutzen*/*dienen* ('be of use') for example..

(82) a. Dass sie die Tribüne verlegt hatten, gefährdete die Zuschauer.
'That they had relocated the grandstand endangered the spectators.'

b. Dass sie das Problem lösen konnte, verbesserte ihre Stellung in der Firma.
'That she could solve the problem improved her position in the company.'
(Engelberg 2005: 46)

(83) helfen, schaden, nutzen, dienen, gefährden, verbessern, erleichtern
help harm be-of-use serve endanger improve facilitate

The relation between the eventualties associated with the subject and the object of the sentences corresponds to the concept of indirect causation, i.e., the existence of several causal steps that lie between the situation expressed by the proposition and the situation of the affected object. In (82b), for example, a possible step in between the beginning of causal chain and the final result is that the relevant person could have received a promotion. The evaluative meaning comes from a good or bad value of the result state expressed by the verb. For example, being in danger is generally seen as badly affected whereas being improved rather means that something is positively affected. Bringing both causal relation and evaluation together results in the sphere shift mentioned in (81b). For the following considerations, I assume that the sphere shift is something along the lines of a concrete-to-abstract shift.

Note that, for the identification of the conditions of sentential-subject licensing, Engelberg (2005) also looks at psych verbs. However, it is argued that, in contrast to dispositional verbs, EO verbs do not involve evaluative meanings but license the subject type through a mental-domain shift (see also Rothmayr 2009). However, I will argue below that there is no need to distinguish dispositional and EO verbs at this point and vote for a direct association between sentential subjects and evaluative semantics. Before that, in the following paragraphs, I will outline the distribution of sentential subjects.

The distribution of sentential subjects

The case of dispositional verbs shows that there are some causative verbs that are able to express the evaluative value of the effects they encode, i.e., they entail information about the relation between things apart from the concrete world, such as subjective judgments on a good/bad scale. Nevertheless, this is not an option for all verbs of causation. Compare the examples in (84) with examples containing dispositional verbs in (85).

(84) Non-dispositional causatives

a. * Dass Laura sich bewegte, zerbrach die Vase/schloss die Tür.
'That Laura moved broke the vase/closed the door.'

b. * Dass Laura nicht umgeparkt hatte, blockierte die Einfahrt.
'That Laura didn't repark blocked the driveway.'

(85) Dispositional causatives

a. Dass Laura sich bewegte, gefährdete das ganze Team.
'That Laura moved endangered the whole team.'

b. Dass Laura nicht umgeparkt hatte, ruinierte ihre Ehe.
'That Laura didn't repark ruined her marriage.'

According to the examples, causative verbs such as *zerbrechen* ('break'), *schließen* ('close') or *blockieren* ('block') do not license sentential subjects while others are compatible with the same type of subject. Interestingly, adding an extra causal predicate such as *lead to* or *cause* renders them well-formed, indicating that the condition that fulfills the relevant requirements for CP-subject-licensing is not covered by non-dispositional causatives. The effect is illustrated in (86).

(86) a. Dass Laura sich bewegte, führte dazu, dass die Vase zerbrach/die Tür geschlossen ist.
'That Laura moved led to the vase being broken/the door being closed.'

b. Dass Laura nicht umgeparkt hatte, führte dazu, dass die Einfahrt blockiert war.
'That Laura didn't repark led to the driveway being blocked.'

The examples show that, although sentential subjects cannot be used to express a direct cause, they may express the source of a causal chain of events, which corresponds to the complex reasoning condition in (81) above. What is less obvious to me, however, is whether structures that express indirect causation involve a step between "spheres of reality". In principle, predicates such as *lead to* or *cause* can be understood as inducing abstract explanation relations that take place in a non-concrete sphere. Certainly, this depends on what we understand by different 'spheres of reality'. The same holds for for non-periphrastic verbs that are able to express complex relations but lack an obvious evaluative meaning, e.g., *cause* or *explain*. Schulz (2003) names different types of predicates based on their varying factive nature. Along with "less" factive predicates, she identifies so called "if-predicates", which seem to coincide with cause-only CP-licensing verbs. Examples are *bring about*, *cause*, *forces*, *have make*, *make sure* or *be wise*; some of them also license sentential subjects.

At this point, I would like to briefly recall the comparison of EO verbs with verbs of stative causation in Section 5.1, because the above discussion also explains the problematic status of the examples found in Rothmayr (2009). They are repeated in (87).

(87) a. Daß ein Baum vor dem Fenster steht, behindert die Aussicht.
that a tree in-front-of the window stands disturbs the view.
'It is blocking the view that there is a tree in front of the window.'

b. Daß Haare im Abfluß sind, verstopft ihn.
that hair in-the drain are obstructs it.
'It obstructs the drain that there are hair in it.'
(Rothmayr 2009: 47)

Using these examples, Rothmayr (2009) argues that verbs of stative causation license *that*-clause subjects. As already mentioned, I do not agree with the given judgments and, based on that, I assume that the use of sentential subjects is not compatible with the concrete use of verbs of causation. The discussion above predicts for such examples that we can improve them if we either induce complex dependencies or a shift to an abstract sphere. The former kind of manipulation is illustrated in (88).

(88) a. Daß der Baum vor dem Fenster steht, führt dazu, dass die Aussicht
that a tree in-front-of the window stands leads to that the view
behindert ist.
disturbed is
'It is blocking the view that there is a tree in front of the window.'

b. Daß Haare im Abfluß sind, führt dazu dass er verstopft ist.
that hair in-the drain are leads to that it obstructed is
'It obstructs the drain that there are hair in it.'

The direct causes for the result states can be various things that are part of a causal chain. For example, for (88b) it could be something else which is attached to the tree (e.g. by hanging on it) that disturbs the view. Note that it is rather difficult for *verstopfen* ('obstruct') to occur in abstract contexts. The abstract (here dispositional) use for *behindern* ('impede') is exemplified in (89).

(89) Dass er so nervös ist, behindert ihn bei der Arbeit.
'That he is so nervous impedes his work.'

Another interesting contrast is provided by the examples in (90). It involves the use of the abstract version of *open* – a typical lexical causative verb which now appears to be compatible with sentential subjects.

(90) a. The storm opens the door. CONCRETE

b. * That the storm is so strong opens the door. CONCRETE

c. That he decided to sign opens some important doors for him. ABSTRACT

Thus, abstract *open*, in contrast to concrete *open*, licenses *that*-clauses showing that such a use fulfills the requirements for sentential subject licensing.

Finally, another way to license sentential subjects is by adding explicit evaluative material, which is in compliance with the "spheres of reality" requirement of sentential subject licensing. The relevant contrast is given in (91).

(91) a. ?? Dass er jeden Tag übt, bereitet ihn auf die Prüfungen vor.
'That he practices every day prepares him for the exams.'

b. Dass er jeden Tag übt, bereitet ihn gut auf die Prüfungen vor.
'That he practices every day prepares him well for the exams.'

Evidently, adding explicit evaluative material to a predication which usually does not license sentential subjects improves the structures.

If we dissect dispositional predicates, it appears that the verbs discussed so far contain subjective predicates, as in *erleichtern*/*erschweren* (*make sth. be (more) easy/difficult*) or as in *gefährden* and *verkomplizieren* ('to make sth. be dangerous/complicated'), and modal predicates as in *ermöglichen* and *verhindern* ('to make something possible/impossible'). Thus, the verbs contain predicates that may be interpreted as the result in the causal relations (if they have one), and at the same time, may serve as dispositional predicate in the domain of evaluation. Moreover, one could say that the predicate embedded in *blockieren* and *zerbrechen* ('to make sth. be blocked/broken') only describes a result state for an object and no potential values. The only valid use of *that*-clauses in such cases seems to occur in their psych variant (break sb.'s resistance/block sb.'s mind), which eventually is a subjective experiential result. Whether and how experiential results express the values relevant for an evaluative abstract-to-concrete shift will be discussed in the following section.

5.3.2. Sentential subjects in EO structures

Given that many EO verbs licenses *that*-clause subjects, see (92), we can assume that they contain all the relevant aspects of meaning that are required to license sentential subjects.

(92) Dass Hans Maria geküsst hat erstaunte/ irritierte/ schockierte/ überraschte/
that Hans Maria kissed has astonished/ irritated/ shocked/ surprised/
verärgerte/ erfreute/ entzückte/ erboste/ frustrierte Laura.
annoyed/ pleased/ delighted/ angered/ frustrated Laura

The examples in (93) show that the same sentential stimuli that are incompatible with concrete verbs of causation are unproblematic for EO verbs (recall example 84).

(93) a. Dass Laura sich bewegte, ärgerte den Fotografen.
'That Laura moved annoyed the photographer.'

b. Dass Laura nicht umgeparkt hatte, verwunderte/irritierte die Nachbarn.
'That Laura didn't repark astonished/irritated the neighbors.'

If we adopt Engelberg (2005)'s view on sentential subjects, the acceptability of *that*-clause subjects is due to the fact that, just like dispositional verbs, EO verbs involve complex reasoning and a step between spheres of reality. However, it has been argued that EO verbs are not evaluative because, in contrast to dispositional verbs, they lack the relevant lexical entailments and do not allow access to an evaluation domain (Engelberg 2005 and Rothmayr 2009). In the following paragraphs, I discuss and evaluate the observations which led to this assumption. It will be shown that the given arguments are not sufficient to rule out the option of evaluative EO verbs, especially considering the structural parallels between dispositional and EO verbs.

Evaluative entailments

According to Engelberg (2005), the difference between EO and dispositional *that*-clause licensing is that EO verbs do not carry an evaluative component in their lexical meaning. Nevertheless, there are reasons to assume that EO verbs have evaluative semantics. First, they regularly serve as a basis for evaluative predications. They exhibit stimulus-oriented participles and experiencer-oriented adverbs as exemplified in (94).[10]

(94) frustriert–frustrierend, entzückt–entzückend, schockiert–schockierend
frustrated-frustrating delighted-delighting shocked-shocking

[10]Instead of building participles the regular way, some EO verbs have alternative ways of expressing the evaluative stimulus-oriented version. For example, forms like *ärgernd* ('angering'), *ekelnd* ('disgusting'), *wundernd* ('wondering'), *erfreuend* ('pleasing') are ruled out. These verbs have different adjectival forms, i.e. *ärgerlich* ('annoying'), *ekelhaft* ('disgusting'), *(ver-)wunderlich* ('wondering'), *erfreulich* ('pleasing').

Whereas the experiencer-oriented version expresses the experiencer's state (*be frustrated*), the stimulus-oriented adjectives signalize evaluation of the stimulus (*be frustrating*). The experiencer can optionally be added with a *for* phrase (*be frustrating for so.*). The stimulus-oriented version can often be embedded under the attitude verb *finden* ('find'), which is seen as indicator for subjective evaluation (cf. Section 5.4.2). This is exemplified in (95).

(95) a. Das Lied entzückte/erschütterte/frustrierte Laura total.
'The song totally delighted/rocked/frustrated Laura.'

b. Laura findet das Lied total entzückend/erschütternd/schockierend.
'Laura finds the songs totally delighting/upsetting/shocking.'

What the examples at least show is that basic experiential predicates are licensed in evaluative environments. The more relevant point is, that the meaning of (95b) is also expressed in (95a). Thus, one can assume that the semantic contribution that *find* makes should be retrieved in stative EO verb structures. Thus, apart from the causal nature of EO verbs, i.e., expressing a relation between the song and Laura, they also express Laura's attitude. Both aspects of the verbal meaning correspond to Engelberg (2005)'s preconditions for CP-subjects in (81) above. The relation between evaluative adjectives and EO verbs will be discussed in more detail in Section 5.4.

As a last point regarding lexical evaluative entailments, recall that the good/bad value in dispositional verbs comes from the result state expressed by the verb, e.g., that endangering is a bad thing, while improvement is rather seen as positive. Indeed, many EO verbs allow inferences with respect to one or the other direction (Filip (1996), Jackendoff 2007). The relevant examples are given in (96).

(96) a. erfreuen ('please'), entzücken ('delight'), amüsieren ('amuse'), belustigen ('divert'), ermutigen ('encourage'), motivieren ('motivate')

b. verärgern ('anger'), verängstigen ('frighten'), aufregen ('upset'), erzürnen ('incense'), erschüttern ('shake'), schockieren ('shock'), entsetzen ('horrify'), stören ('bother'), verstimmen ('annoy'), stressen ('stress'), enttäuschen ('disappoint'), betrüben ('sadden'), deprimieren ('depress'), erbosen ('make-angry'), bedrücken ('aggrieve'), bestürzen ('dismay'), beunruhigen ('trouble')

The verbs in (96a) are able to express positive values, whereas the verbs in (96b) indicate negativity. Thus, the state the EO verbs' semantics contains is (re-)interpretable

as positive/negative value, which could be seen as a lexical inference similar to the dispositional verbs discussed in Engelberg (2005). See also that, in order to develop an approach along this line, one would have to show that meanings of EO verbs with a potential evaluative use always range along a scale such as *good/bad*. Interestingly, in case an EO verb lacks an unequivocal tendency in terms of evaluation, for example, *überraschen* ('surprise'), *erstaunen* ('astonish'), *verwundern* ('make wonder'), *irritieren* ('irritate') or *verblüffen* ('astound'), they seem to offer an information about the relation between stimulus and experiencer based on the epistemic status of the experiencer, i.e., they are all based on the experiencer's state of knowledge and expectedness about the factive stimulus.[11] Also, cases such as *schockieren* ('shock') or *erschüttern* ('shake') involve multiple modalities as both evaluation and state of knowledge seem to play a role.

Evaluation domain

The main reason for the dismissal of an evaluative component for EO verbs is the general unavailability of evaluative domain modification with EO verbs. According to Engelberg (2005), the evaluation of something being better or worse always happens with respect to a particular domain, e.g., people's health, their work or private life. As a consequence, the result component of the verbal meaning can be modified by corresponding adverbials, as it is shown in (97). Apparently, this is not possible for the EO structures in (98).

(97) Das hat ihr finanziell/ gesundheitlich/ akademisch/ beruflich/ persönlich/
this has her financially sanitary academically professionally personally
emotional/ gesanglich/ musikalisch geholfen.
emotionally with-respect-to-singing musically helped.
'This helped her financially/sanitary/academically/professionally/personally/
emotionally/with respect to singing/musically.'
(Rothmayr 2009)

(98) a. * Der Witz ärgerte den Poldi gesundheitlich/ finanziell/ beruflich.
the joke annoyed the Poldi sanitary financially professionally.
'The joke annoyed Poldi sanitary/financially/professionally.'

[11] This corresponds to what is called *mirative*, which "refers to the marking of a proposition as representing information which is new to the speaker" and is sometimes analyzed as a subtype of evidentiality (DeLancey 2001: 1).

b. * Daß der Poldi gestern ein Bier getrunken hat, ärgerte die Irmi
that the Poldi yesterday a beer drunken has, annoyed the Irmi
gesundheitlich/ finanziell/ beruflich/ emotional.
sanitary financially professionally emotionally.
'It annoyed Irmi sanitary/financially/professionally/emotionally that Poldi drank a beer yesterday.'
(Rothmayr 2009)

Rothmayr (2009) concludes that this "indicates that there is no 'hidden' state of effect with object-experiencer verbs. Rather, the effect holds within the experiencer itself." (p. 65). One could also argue, however, that the domain is simply not accessible to such modifiers for some reason. For example, it is possible, that the domain is already lexically specified by the verb, i.e., *x annoys y*, then, would mean *x is bad according to y with respect to the domain of emotion, which is (part of) y.* Consequently, the modification with an adverb such as 'emotionally' is superfluous. At the same time, the definitions of domains as financially or professionally are excluded for conceptual reasons. According to Engelberg (2005), this is why a verb such as *smell* would not license a modification like *smell-wise*, as the domain is lexically "pre-installed" (p.53). The evaluative uses of verbs like *help* or *endanger*, on the other hand, are not restricted to one domain and license the corresponding modifications.

Another weak point of the observations on domain modification is the variety of structural means we have available to specify such a domain. This can, for example, be made by adjunction of adverbs *finanziell/beruflich* ('financially/professionally'), of PPs like *bei der Finanzierung* ('with the financing') or the *was … betrifft* ('as for …') construction in the prefield. Example (99) uses a way of modification which seems to be more in accordance with EO verbs, as opposed to (98b) above.

(99) Was das gesundheitliche/ finanzielle/ berufliche/ emotionale angeht
what the sanitary financial professional emotional concerns
ärgerte es die Irmi dass der Poldi gestern ein Bier getrunken hat.
annoyed it the Irmi that the Poldi yesterday a beer drunken has.
'When it comes to sanitary/financial/professional/emotional issues, it annoyed Irmi that Poldi drank a beer yesterday.'

Thus, one could also assume that EO structures are restricted with respect to the structural realization of the evaluative domain instead of not having it.

Experiential evaluator

Another difference between experiential and non-experiential evaluation is that, in EO structures, the experiencer is the evaluator, whereas in non-experiential dispositional structures, it is the speaker who evaluates things, if not otherwise specified. This contrast is illustrated in (100), which compares the dispositional (100a) and the experiential use of the verb *stören* (100b).

(100) a. Dass Laura sich nicht meldet stört den Ablauf. EXTERNAL EVAL
'That Laura doesn't get in touch disturbs the procedure.'

b. Dass Laura sich nicht meldet stört den Chef. INTERNAL EVAL
'That Laura doesn't get in touch bothers the boss.'

The example shows that the domain shift is accompanied by a shift from sentence-external to an internal source of evaluation, which also explains why the object in non-experiential evaluative structures can refer to animate or inanimate entities, whereas the object-reference in EO structures is restricted to animate sentient individuals. Recall also that, as a special experiential feature, experiencers are generally aware of the described situation. This is not the case for dispositional verbs with *that*-clause subjects, as shown in (101).

(101) a. Dass Laura sich nicht einmischt, verbessert die Arbeit der Kollegen, aber sie merken es nicht. DISPOSITIONAL
'That Laura doesn't intervene improves the skills of the colleagues but they don't realize it.'

b. Dass Laura sich nicht einmischt, ärgert/irritiert die Kollegen, #aber sie merken es nicht. EXPERIENTIAL
'That Laura doesn't intervene annoys/irritates the colleagues, but they don't realize it.'

The contrast shows that awareness is required in (101b) but not in (101a). Thus, in principle, even if an individual is present in structures with dispositional verbs, the evaluation may come from outside without the object individual knowing about it. Despite this difference, I assume, that the obligatory involvement of the evaluator in EO structures does not concern the question of their evaluative nature.

5.3.3. Section summary

In retrospect, the comparison with non-experiential structures in the present chapter has shown that EO verbs share many properties with verbs that express stative causation as well as with with p-attitude verbs. Hence, there has been some evidence that special EO structures may involve experiential states but also experiential attitudes, the latter pointing to a non-causal use of EO verbs in which the experiencer is not emotionally affected but gives her or his assessment on the stimulus. The primary objective in the present section was to compare EO verbs with dispositional verbs which also seem to combine such meaning components as they carry causative semantics as well as evaluative meaning in which the speaker assigns good/bad values (e.g. *improve* vs. *ruin*) to the subject referent. Form-wise, the common property EO verbs and dispositional verbs is the licensing of sentential subjects. The previous considerations were mainly based on Engelberg (2005)'s observations about the licensing of sentential subjects. According to his requirements the use of sentential subjects is restricted to environments which involve complex reasoning relations and a shift between "spheres of reality". For dispositional verbs, this shift is possible due to lexical evaluative entailments. Although it is argued that EO and dispositional verbs allow *that*-clause subjects for different reasons, I have argued for the position that EO verbs, too, can express evaluative meaning. The section revealed that the semantics of EO verbs in principle allows for inferences which are required for evaluative statements. This concerns good/bad values as well as information regarding expectedness (e.g. as in *surprise* or *astonish*). Evaluative semantics is licensed as soon as a certain scale can be derived from the verb's full meaning, e.g., as dispositional *endanger* or experiential *annoy* being bad could be derived from their basic meaning of putting someone in danger or in a bad mood. Therefore, although causal semantics is build into these verbs at some place, there is an additional layer of attributing values to the subject referent. Another objection against the assumption of evaluative EO verbs concerns their lack of the required evaluation domain, e.g., being good/bad with respect to someones profession or financial situation. Although I argue that the domain with EO verbs can probably be modified by different means and may, in some cases, underly conceptual restrictions, it is worth exploring ways of domain modification further for both verb types in order to sharpen the image.

Based on the findings in this section, I assume that the observed differences do not speak against a parallel analysis of EO and dispositional verbs in their non-causal use, Nevertheless, the previous comparisons made clear once more, as matters stand, that EO structures stand out due to their psych semantics and the involvement of an expe-

riencer that processes the situation. The discussion in the following section will point to the existence of other instances of emotive-evaluative structures, i.e., structures with core predicates that assign properties to stimuli but also contain an explicit experiential judge. This will further approach the idea that the emotive-evaluative use constitutes a subtype of stative EO structures, alongside with EO verbs as state-denoting predicates involving causation.

EO verbs and sentential subjects with dispositional verbs

i. Many EO verbs license CP-subjects. From this, one can conclude that the EO verbs' semantics involves complex relations between the stimulus and the experiencer as well as evaluative semantics.

ii. Alongside the stative causative use, EO structures can express evaluative statements, in which the experiencer assigns a subjective value to an established state of affairs.

iii. Presumably, being a subtype of special EO structures, the evaluative use of EO verbs is not explanatory for psych properties.

5.4. Evaluative adjectives, subjectivity and perspective

So far, the comparisons of experiential and non-experiential structures in this chapter created the impression that it is not only one structure type that underlies the stative EO use. It became apparent that a stative EO structure such as *The decision amazes her* can be used for expressing causation as well as value judgments. In the previous section, I compared experiential with non-experiential transitive verbs that license sentential subjects. In the present section the class of predicates involving propositional subjects and emotive-evaluative semantics is going to be extended. I am going to look at evaluative and psych adjectives and what they disclose about the nature of stative EO structures. Examples for both are given in (102).

(102) a. That was clever. EVALUATIVE ADJECTIVE

b. That was amazing. PSYCH ADJECTIVE

Usually, with evaluative adjectives, the judge stays external, which means that it is the speaker per default unless we mention it with additional means, e.g., phrases such as 'for/to/according to x_{JUDGE}'. Interestingly, in German, and a number of other languages, there are two adjectival environments that allow for the realization of a argument-like dative-marked judge instead of a PP. These environments are illustrated for evaluative adjectives in (103a) and psych adjectives in (103b).

(103) a. Die Musik ist $Laura_{JUDGE}$ zu laut. EVAL ADJ
the music is Laura.DAT too loud

b. Das Verhalten ist $Laura_{JUDGE}$ lästig/ sympathisch/ unheimlich. PSYCH ADJ
the behavior is Laura.DAT annoying likable eerie

The adjectives in (103b) are not derived from psych verbs but have emotive semantics and therefore belong to the class of psych predicates. The realization of an experiential judge eventually allows for a classification as experiencer object (EO) adjectives in parallel with EO verbs.

A phenomenon which is inevitably associated with evaluation is subjectivity. It is interesting from a semantic as well as pragmatic perspective as the meaning of subjective issues needs to be individually determined and, as a result, sets special conditions for conversations. Likewise important, as soon as intentional individuals such as agents, judges or experiencers are involved, different perspectives play a role for the interpretation of an utterance. Regarding this, it has been mentioned before that the experiencer plays a central role for the meaning of stative EO structures but and that speaker involvement is also an option under certain conditions (cf. 5.2.2).

Generally speaking, the aim of the present section is to discuss concepts such as evaluation, subjectivity and perspective with respect to the question of how they apply to stative EO structures. First, it will be shown how the idea of an experiential judge receives support from the adjectival domain in Section 5.4.1. Second, the conditions of privative judgments and perspective will be elaborated in Section 5.4.2. Finally, Section 5.4.3 summarizes the findings.

5.4.1. Evaluative and psych adjectives

Similar to dispositional and EO verbs, evaluative adjectives can express positive (e.g. good, clever or nice) and negative values (e.g. bad, impolite or stupid). The class itself

is very broad. To give a general idea, together with dispositional adjectives (*tall* or *red*) they are seen as measurable adjectives, i.e., they always need to be interpreted with respect to a scale (Bierwisch 1989). In that respect, they are in contrast to purely descriptive adjectives such as *wooden* or *vegetarian*. Evaluative adjectives are sometimes separated from dispositional adjectives based on the type of scale they are measured on, as it seems to be the case that the former is more abstract and more subjective, e.g., the so-called *predicates of personal taste* (PPT; Lasersohn 2005) such as *fun* or *tasty*. However, dispositional predicates often still come along with certain vagueness, which can be traced back to different understandings of the respective scales. For more general discussions of different types of evaluative adjectives see Bierwisch (1989), Stowell (1991), Landau (2006), Kertz (2006), Jackendoff (2007), Marín (2009), Fábregas et al. (2013), Karttunen et al. (2014), Kennedy (2016), just to mention some of them.

Evaluative adjectives allow property ascriptions to states of affairs as well as to individuals. Example (104) shows that we find a emotional state/evaluation distinction with adjectives when they predicate on individuals.

(104) a. Laura is sad because her neighbor died. STATE
b. Laura ist sadistic, because she tortures her neighbor. EVALUATION
c. I consider Laura sadistic, because she tortures her neighbor.

The compatibility with *because*-clauses as expressions of causal sources indicates that (104a) can be interpreted as a caused result state of an individual, whereas (104b) could not. As shown in (104c), such *because*-clauses are only licensed in case they serve as explanatory adjunct. One indication for the EO verbs' connection with the domain of evaluativity was that they regularly serve as the basis for evaluative adjective formation (cf. Section 5.3.2). They too build experiencer- as well as stimulus-oriented adjectives, as illustrated in (105).

(105) a. Laura is frustrated/worried/disgusted/delighted. EXP-ORIENTED
b. This is frustrating/worrying/disgusting/delighting. STIM-ORIENTED

Experiencer-oriented adjectives denote the experiencer's state, whereas stimulus-oriented adjectives attribute an emotion-based property to a stimulus. Thus, it appears that (105a) has direct emotive content and (105b) primarily denotes the attribution of a judgment value, although we would probably assume that the judge is or was in the state of frustration or disgust at some point (cf. Jackendoff 2007). Altogether, the availability of both orientations correspond to the two-way lexical potential of EO verbs,

i.e., containing experiencer-oriented resultative semantics as well as stimulus-oriented evaluative potential. In the following paragraphs, I discuss additional observations on the predicates' clausal subject licensing as well as the licensing of experiential judges.

Factive adjectives and evaluation

As one can already speculate from the findings of the previous sections the association between propositional *that*-clause subjects and evaluative semantics might not be coincidental, as this creates stimulus-oriented structures in which one assigns properties to states of affairs (see, e.g., Norrick 1978 or Hunston & Thompson 2000). I would like to briefly point to Norrick (1978)'s classification of factive adjectives, which is spelled out in (106) and (107).

(106) Classes of adjectives with extraposed CPs

a. EMOTIVE: angry, disgusted, glad, grateful, happy, regretful

b. EVALUATIVE: brave, careful, clever, kind, mean, wise

c. COGNITIVES[12]: aware, cognizant, conscious, informed

(107) Classes of adjectives with prefield CPs

a. EMOT-EVALUATIVES: amusing, bothersome, lamentable, sad

b. COG-EVALUATIVE: comprehensible, recognized, well-known

c. PURE EVALUATIVES: absurd, egregious, fantastic, germane
(Norrick 1978: 53)

Norrick (1978)'s classification gives a good overview of CP-selecting factive adjectives, which are generally subsumed under the term *evaluative adjectives*. In his extensive study he investigates the presuppositional force of cognitive and emotive-cognitive predicates and argues that this semantic distinction is relevant for explaining grades of factivity. As for the present purposes, Norrick (1978) proposes that the association between Sub-comp factive propositions and evaluation is a natural one, i.e., "those predicates which allow sentential subjects are evaluative rather than emotive or cognitive" (p. 46). If we translate that for factive stative EO structures, it supports the

[12]Note that the classification shows that proposition-selecting structures with adjectival cores are structurally and semantically almost as variable as their verbal counterparts, as they can have cognitive, emotive and/or evaluative content. Recall that similar characterizations were found with different p-attitude verbs associated with their levels of factivity in Section 5.2.

view represented here, namely, that EO verbs with sentential subjects may be used as evaluative predicates. The following paragraph demonstrates that it is not necessarily the speaker's value judgment that is expressed with evaluative adjectives which again brings them closer to EO structures as they are discussed in the present work.

Experiential judges in adjectival structures

Due to their monovalent nature, evaluative adjectival structures often leave the source of judgment unexpressed. Nevertheless, the judge can optionally be added with expressions such as 'according to x_{JUDGE}' or 'to/for x_{JUDGE}'. Without such phrases, we assume the judge to be the speaker. Apart from judges introduced by PPs, German has two environments in which the insertion of a free judgment dative argument is licensed.[13] The first licensing environment is evaluative adjectival and adverbial structures under the presence of the grading particles *zu* ('too') and *genug* ('enough'), which introduce "a condition for a limit (…) regarding the dimension specified in the governing adjective" (Bierwisch 1989: 194). The use of the German judgment dative is exemplified in (108).

(108) a. Die Musik des Nachbarn ist zu laut. SPEAKER EVALUATION
'The neighbor's music is too loud.'

b. Die Musik des Nachbarn ist $Laura_{JUDGE}$ *(zu) laut.
the music the.GEN neighbor.GEN is Laura.DAT too loud
'Laura finds the neighbor's music too loud.'

Example (108b) demonstrates that the dative insertion is ungrammatical without the grading particles. Moreover, the argument expressed with the judgment dative has to be somehow affected by the extension of the limit. As shown in (109), such a structure is not compatible with phrases that express the individuals indifference (cf. Lambert 2010). See also that it is not possible to insert an external judge, as in (110).

(109) Laura war die Musik zu laut, #aber sie fand das nicht schlimm.
'The music was too loud for Laura but she doesn't care.'

(110) * Ich finde, dass Laura die Musik zu laut ist.
I find that Laura.DAT the music too loud is
'I think that, according to Laura, the music is too loud.'

[13] This is also an option in several other languages, e.g., for Hungarian (Rákosi 2006) or Serbian (Krivokapić 2008).

Note that there is an exception to the awareness requirement depicted in (109) and to the restriction on *finden*-embedding in (110). With dispositional adjectives (*tall*, *big*), it is also possible to have unaffected datives. Due to this option, structures such as in (111) are ambiguous between an orientation and an evaluation reading, i.e., the dative argument is either used as a landmark or as the evaluator of the predicated property (see also Hole 2014). The two uses are disambiguated in (111a) and (111b), respectively.

(111) Der Mantel ist Laura zu groß. AMBIGUOUS
'The coat is too big for Laura.'

a. Der Mantel ist zu groß für Laura's Körpergröße. LANDMARK
'The coat is too big for Laura's body size.'

b. Laura findet den Mantel zu groß. EVALUATOR
'Laura finds the coat too big.'

In contrast to experiential judges, the landmark use of Laura in (111) is compatible with a phrase indicating non-awareness of the individual. This would not be possible, if such datives would always and only express the individual's personal judgments. Moreover, an external judge can be added with the subjective attitude verb *find*. Both properties are exemplified in (112) and (113).

(112) Der Mantel ist Laura$_i$ zu groß, aber sie$_i$ merkt es nicht.
'The coat is too big for Laura, but she doesn't realize it.'

(113) Ich finde, dass Laura der Mantel zu groß ist.
I find that Laura.DAT the coat too big is
'I think that the coat is too big for Laura.'

However, naturally, such datives do not count as judgment datives, which leads to the generalization that judgment datives are always somehow affected (cf. Lambert 2010). I refer the reader to Hole (2014) for further details on the distinction between datives that encode landmarks and those that encode experiential individuals. For the present purposes, it is crucial that judgment datives are always somehow affected.

Psych adjectives

The second environment that licenses free datives is structures built by EO psych adjectives. A list of dative-licensing German EO adjectives is given in (114).

(114) (un-)angenehm ('(un-)pleasant'), (un-)bekannt ('(un-)known'), (un-)begreiflich ('(un-)believable'), bewusst ('aware'), egal ('doesn't matter'), einerlei ('doesn't matter'), ernst ('serious'), fremd ('alien'), gegenwärtig ('present'), gleich ('doesn't matter'), geheuer ('fishy'), (un-)klar ('(un-)clear'), lästig ('annoying'), lieb ('beloved'), neu ('new'), peinlich ('embarrassing'), recht ('right'), (un-)sympathisch ('(un-)likable'), unerklärlich ('unexplainable'), unheimlich ('eerie'), verhasst ('abhorred'), (un-)verständlich ('(in-)comprehensible'), vertraut ('familiar'), (un-)wichtig ('(un-)important'), willkommen ('welcome'), zuträglich ('conducive'), zuwider ('abhorrent')
(Temme 2014: 134)

EO adjectives allow for the realization of a judgment dative even without the presence of the grading particles *zu* ('too') or *genug* ('enough'). Note, however, that the dative insertion is not possible for all adjectives that might somehow be related to emotion. Compare (115) and (115b).

(115) a. Der Mann/Das Verhalten ist Laura lästig/ sympathisch/ unheimlich.
the man/the behavior is Laura.DAT annoying likable eerie
'Laura finds the man annoying/likable/eerie.'

b. * Der Mann/ das Verhalten ist Laura dumm/sadistisch/verrückt.
the man the behavior is Laura.DAT stupid/sadistic/crazy
'Laura finds the man/the behavior stupid/sadistic/crazy.'

Nevertheless, as a general option, the free dative in (115b) could be licensed in combination with grading particles.

EO adjectives behave very similar to evaluative adjectives with *zu* and *genug*. For adjectival EO structures, too, the individual denoted by the dative argument needs to be aware of the predication (116) and it is not possible to introduce a structure-external evaluator (117).

(116) * Der Mantel ist ihr$_i$ unangenehm, aber sie$_i$ weiß es nicht.
'The coat is uncomfortable for Laura, but she doesn't know it.'

(117) * Ich finde, dass der Mantel Laura angenehm ist.
'I think that, according to Laura, the coat is comfortable.'

The observations above suggest that whatever is required for a judgment dative insertion is somehow involved in the EO adjectives' semantics. A structural proposal along this line has been made, for example, by Krivokapić (2008) for Serbian, who assumes

that a degree phrase is always present but has an empty head in the cases without the grading particle. Note also that, in general, other languages are much less restrictive when it comes to the licensing of the judgment dative in structures lacking a grading particle. As shown in (118), for example, Serbian allows the free dative insertion for the subjective adjective *pretty* without a grading particle, which is not possible in German. See example (118).

(118) Ona je (Marku) lepa.
she is Marko.DAT pretty
'She is pretty to/for Marco.'
(Krivokapić 2008: 301)

Moreover, and more specifically, the dative licensing seems to be associated with the semantics of grading particles. One could imagine, for example, that only the grading particles implicate an experience-based value, as their presence lead to the effect that there is not only a property attributed to the stimulus but that the value is also associated with the crossing of an upper or lower limit, which is automatically associated with the experiential judge. For example, *sweet* or *loud* may count as subjectively assigned properties of things, whereas the values *too sweet* and *too loud* may actually affect someone in a manner relevant for the judgment dative insertion. Thus, in such contexts we find an attribution similar to EO verbs, i.e., a stimulus' property based on the affection of a judging individual. In contrast to EO adjectives, evaluative adjectives that simply assign properties to individuals or proposition-like entities are not based on the same kind of experience and need an additional "affecting" element. On the other hand, the presented view leaves unexplained why deverbal EO-adjectives do not license the insertion of a judgment dative as their emotive-evaluative semantics would suggest. Consider the examples in (119).

(119) a. ?? Das ist mir verwunderlich/ ärgerlich/ erfreulich.
that is me wondrous annoying pleasant
b. * Das ist mir frustrierend/ entzückend/ störend.
that is me frustrating delighting disturbing

This is probably subject to structural restrictions stemming from the derivational relation to the base predicate. In general, however, the judgment dative constitutes a productive pattern and is subject to inter-speaker variation. For example, the structures in (120), which would probably not be accepted by every speaker are perfectly understandable.

(120) a. Das Leben ist mir widerwärtig u[nd] der Tod ist mir grauenhaft.
'Life is disgusting to me and death is gruesome to me.'

b. Und doch: Dieses neue Christentum ohne das Sakrale ist mir ärgerlich.
'And yet: this new Christianity without the sacral (element) is annoying to me.'

c. Ob die Menschen Vernunft haben, ist mir entsetzlich problematisch.
'Whether the people are reasonable, is incredibly problematic to me.'

d. Ob bei einem solchen Angebot die Barriere gegen private Eugenik halten wird, das ist mir zweifelhaft.
'Whether the barrier against private eugenics can be stable with an offer like this, is questionable to me.'[14]

Therefore, I assume that the free-dative option for adjectival predicates cannot be ruled out as a matter of principle, as the structures could be well-formed in some contexts or at some point in time.

As a result, evaluative adjectives in connection with grading particles as well as psych adjectives license the presence of an affected judge in form of a free dative argument. Both cases seem to constitute a class of predicates that involves a combination of emotion and evaluation, just like it is argued for EO verbs in the present chapter.

5.4.2. Subjectivity and perspective with experiencers

An issue directly related to evaluation and speaker-commitment is subjectivity, as both evaluative (*good/bad*) and emotive-evaluative (*fascinating/disturbing*) statements are based on subjective judgments. The following discussion elaborates the role of experiencers and speakers in subjective evaluative contexts.

In general, EO predicates are gradable and subjective. One indication for subjectivity is the possibility for embedding under subjective attitude verbs such as *finden* ('find'). It is argued that evaluative, but not descriptive predicates can be embedded under *finden*. This is illustrated with the contrast between (121) and (122). Example (123) shows that the embedding is possible for EO adjectives.

[14] The examples are corpus findings taken from Temme (2014): DWDS corpus; Klemperer, Victor [Tagebuch ('diaries')] 1932, p. 287.
DIE ZEIT, 12.10.1973, no. 42.
DIE ZEIT, 07.04.1967, no. 14.
DIE ZEIT, 16.01.1998, no. 4.

(121) * Ich finde Osnabrück liegt in Dänemark.
'I find that Osnabrück lies in Denmark'

(122) Ich finde das lecker/spaßig/klug/dumm.
'I find this tasty/fun/clever/stupid.'

(123) Ich finde das ärgerlich/entzückend/faszinierend/bedrückend/ergreifend.
'I find this annoying/delighting/fascinating/depressing/moving.'

Another indication for subjectivity comes from the faultless disagreement test, which checks whether it is possible for two people to openly disagree on something without one of them being mistaken (cf. Kölbel 2004). This is possible in cases where subjective values are true for each individual. In contrast, objective statements made with descriptive predicates are evaluated in the actual world. A dialogue example for faultless disagreement with predicates of personal taste is given in (124b). The dialogue in (125b) exemplifies a case of faulty disagreement.

(124) a. John: The chili is tasty.
b. Mary: No, the chili is not tasty.
(Lasersohn 2005: 649)

(125) a. Anna: Trippa alla romana is a vegetarian dish.
b. Beatrice: Trippa alla romana is not a vegetarian dish. [15]
(Kennedy 2016: 106)

An interesting effect that can be attested for EO verbs is that an overt experiencer renders faultless disagreement problematic. Compare the dialogue in (126) with the one in (127).

(126) John and Mary just got off the roller coaster.
a. A: That was fun!
b. B: No it wasn't.
(Gunlogson & Carlson 2016: 170)

(127) John and Mary just got off the roller coaster.
a. Mary: That was fun for me.

[15] *Trippa* (engl. Tripe) "is a type of edible lining from the stomachs of various farm animals", and *Trippa alla romana*, as a dish, is "done with white wine and tomatoes" (https://en.wikipedia.org/wiki/Tripe (Access February 1st, 2018), which indicates that it is the least vegetarian dish imaginable.

b. John: #No it wasn't.
(Gunlogson & Carlson 2016: 170)

The contrast shows that, in principle, *fun* as a subjective predicate allows faultless disagreement (126b), but with an experiencer present in the structure, a direct denial of the proposition leads to faulty disagreement (127b). As expected due to the presence of an experiencer, the same happens in EO structures. Compare the dialogue involving an adjectival use of an EO verb in (128) with the one using the corresponding verbal structure in (129).

(128) a. A: His eyes are fascinating.
b. B: No, they aren't.

(129) a. A: His eyes fascinate me.
b. B: # No, they don't.

The effect arises because speaker B's denial in these cases is blocked by the explicit introduction of the experiencers scope which covers the embedded judgment (*fascinate*). As a consequence, the direct denial may capture the experiencer's scope but not the judgment itself. Traditionally, it is assumed that the meaning of a subjective predicate is always evaluated relative to a judge. With stative EO structure the judge is automatically specified and structurally realized. Consider example (130).

(130) a. Laura is fascinated by Peter's eyes.
b. That is not true.

Such a disagreement on subjective attributes involving the experiencer is only possible if the 1st person experiencer is accused of lying or under the presence of 3rd person judging the behavior of Laura. The latter leads to an interpretation, in which two people have different (subjective) opinions about the experiencer's state of mind. In fact, the separation of speaker and experiencer adds an instance of subjective evaluation, which could again be embedded under subjective attitude verbs, as in *I don't think that Laura is fascinated by Peter's eyes.* Thus, the reason for the success of the dialogue is not the subjectivity of the embedded predicate, but it is the subjective information status of the speakers, i.e., their different skills when it comes to to evaluating a persons' state of mind. They may, for example, differ as to what they know about Laura's preferences or how they evaluate her expressions. Simply put, the speaker's attribute something to Laura, but do not say anything about Peter's eyes in (130). The following paragraphs discuss the accessibility of EO statements by a non-experiential speaker.

Expressiveness and perspective in experiential constructions

I have argued before that EO statements are inaccessible to anyone who is not the experiencer her- or himself. However, naturally, there are cases, in which people are able to speculate about the experiencer's state of emotion from outside. This is possible because, sometimes, we have conventionalized external signals for certain emotions. Take, for example, the facial expressions in Figure (5.4).

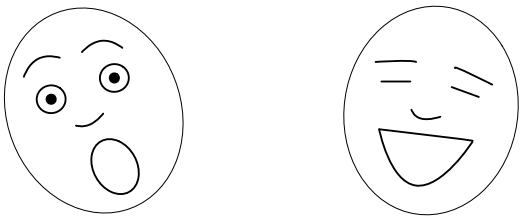


Figure 5.4.: Facial expressions for *startle* and *delight*

Looking at faces with such a kind of feature set, most people would interpret that the experiencer is either startled (left) or delighted (right) about something. As a general consequence, some emotion concepts allow for assertions from the speaker's perspective about someone else's opinions or emotions (while the concepts are still subjectively interpreted). Nonetheless, the emotions encoded by different EO verbs have different manifestations on the individual, with some emotions being more expressive than others. For example, intuitively, *disgust* and *frighten* are more expressive than concepts expressed by *depress* or *worry* (Bouchard 1995: 291 based on a discussion in Kenny 1963[16]).

In this respect, note that differences in expressiveness may also be reflected in aspectual differences and accompanied by different structural reflexes. For example, the availability of the progressive passive seems to be associated with expressiveness: verbs expressing growing emotions like *to depress* are rather restrictive whereas verbs encoding sudden emotions such as *to frighten* seem to be less restrictive when it comes to progressive passive formation (Pesetsky 1995, Bouchard 1995: 312). Consider also that Japanese makes a distinction between feelings and the corresponding physical signals that typically accompany them by using the suffix *-garu*. It can turn adjectives describ-

[16]Kenny (1963) also discusses variation between individual people and situations. Sometimes, experiencers simply do not (want to) show any sign whether there is a proper identification feature or not. Therefore, with no external manifestations "emotions can only be manifested by the use of language" (p. 34)

ing an internal feeling into verbs which then "refer to the standard behavior associated with the 'feeling x', whenever such a behavior exists" (Caluianu 2005). Again, predicates differ as to whether and to what extent they actually have corresponding distinct conventionalized manifestations, as not all predicates allow such an verbalization operation.

A good way to capture the different perspectives that may be involved in subjective structures is Lasersohn (2017)'s differentiation of perspectives (or *stances*, as he calls it) for truth evaluation, i.e., the autocentric and the exocentric.[17] See (131) for informal descriptions of the perspectives.

(131) Perspectives for pragmatic truth evaluation

a. *Autocentric*: perspective of the speaker, i.e., perspective we typically assert from

b. *Exocentric*: viewpoint of a non-speaker or "context in which the judge is someone other than ourselves"
(Lasersohn 2005: 672)

As discussed above, with EO verbs, the availability of the autocentric perspective also depends on how visible the associated emotion is. I assume that the exocentric use is what we primarily interpret in the case of stative EO structures, especially when there is no informative context. Consider the examples in (132). Assume that the different options follow the given sentence individually.

(132) The result annoyed Laura.

a. I could see that. She was probably expecting that they vote for the other candidate.

b. She told me earlier. She was expecting that they vote for the other candidate.

c. Why didn't they vote for the other candidate?

The first option is an example for an autocentric perspective. The examples show that there are at least two ways to make statements from an exocentric perspective, i.e., stating the experiential protagonist's judgment values as in (132b) and (132c): first, there is the reportative way, which generally includes that we trust the author of a

[17] I excluded the acentric perspective from the present considerations, which is also called the 'bird's eye perspective', i.e., general statements with no particular judge and no truth assessment (Lasersohn 2005: 670).

statement and assume that she or he has absolute knowledge about the protagonist. We typically expect that the author has direct evidence provided by the experiencer her- or himself. Such reports often occur with additional material indicating the source and kind of evidence. The second way to convey the protagonist's attitude is for the speaker to act as the narrator, which means she or he is the voice of the judging experiencer. This is what is referred to as Free Indirect Discourse (FID). In some cases, sentence protagonists qualify for this type of interpretation. It was discussed in Hinterwimmer (2017) that sentient individuals such as agents and experiencers are perfect candidates for perspective-taking. Example (133) illustrates how this works.

(133) Susan looked at George hatefully.

a. The dumb jerk had managed to make her look like an idiot at the meeting.

b. # The mean old hag had managed to make him look like an idiot at the meeting.

(Hinterwimmer 2017: 6)

The interpretation as an FID context is indicated by subjective evaluative expressions such as *idiot* or *jerk*. The contrast between (133a) and (133b) shows that we can easily take the subject's perspective in agentive contexts, but the attempt to accommodate the object's perspective is more difficult. Nevertheless, it is possible to create a context, in which (133b) is a perfectly valid option, but it is assumed to be more costly. If we look at EO verbs, on the other hand, it is the object's perspective which is more easily accessible. An example is given in (134).

(134) George bored Mary to death.

a. Tomorrow she would definitely avoid sitting at a table with the bloated idiot again.

b. # How sleepy she looked today!

(Hinterwimmer 2017: 9)

Hinterwimmer (2017) argues that, besides many other triggers for perspective taking, the verb's semantics, or more specifically the features of its arguments, can attract perspective. I assume that this is directly linked to the discussion about meaning-dependencies in special EO structures and structures involving volitional agents in Section 5.2.2. The features relevant for intensionality and perspective-attraction appear to be individual-related concepts such as volition and attitude. In fact, agents and experiencers share their references to individuals which are capable of the mental representation of the statement or event described in a certain structure. In this respect, both

can be seen as a variant of each other, one being prototypically realized as a subject, whereas experiencer individuals can be subjects as well as objects. As a consequence, one would have to show that non-intentional individuals or individual nominals which represent events should be poor perspective-takers.

Perspective and the scope of the person restriction

What also comes into mind when dealing with different perspectives and psych verbs is the Japanese person restriction, which says that assertions about feelings can only come from 1st person experiencers and not from someone "outside", who is referring to a 2nd or 3rd person experiencer (cf. Kuroda 1973). However, an interesting way of overcoming this restriction is illustrated in (135).

(135) a. Boku-wa Pochi-ni shinarete, totemo kanashii
I-TOP Pochi-DAT die, very sad(Adj)
'I am very sad because Pochi died.'

b. * Yamada-san wa Pochi-ni shinarete, totemo kanashii
Yamada-Mr. TOP Pochi-DAT die, very sad(Adj)
'Mr. Yamada is very sad because Pochi died.'

c. Saikin, Yamada-san wa Pochi-ni shinarete, totemo kanashi-gatteiru
lately Yamada-Mr. TOP Pochi-DAT die, very sad-*GARU*
'Lately, Mr. Yamada has showed signs of sadness because Pochi died.'
(Caluianu 2005: ex. 11)

It has been mentioned before that the Japanese *-GARU* marker creates deadjectival verbalizations shifting the denotation of an actual feeling (Adj) to denoting typical behavior that is associated with the feeling (V). The contrast between (135b) and (135c) shows that, due to this shift, it is now possible to access the experiential predication from a non-experiential perspective due to the creation of an autocentric or external perspective. This shows that a language like Japanese has the linguistic means to differentiate internal and external perspectives. See also Lee (2013) for details on conditions of 1st and 3rd person statements in Korean and Japanese. In contrast, languages such as English and German do no mark the internal/external perspective distinction in the relevant structures. Nevertheless, depending on the discourse situation, special EO structures can be interpreted both ways.

As a final note, since phenomena in languages such as Japanese are often associated with perspective and evidentiality, we often find terms such as *cognizer* or *conceptualizer* to capture the internal/external viewpoint distinction. According to Chun & Zubin

(1990), a speaker or cognizer is someone that is presupposed for any subjective statement, and most statements are subjective to some extent. Its role is "to provide the consciousness through which a pure 'objective' event is perceived and understood" (p. 81)). Uehara & Thepkanjana (2014) follow Langacker's terminology and define a conceptualizer as "the person who conceives of a situation/event for and before making an assertion/statement about it", and the speaker is the conceptualizer by default (p. 125). Figure 5.5 visualizes the different perspectives of a cognizer/conceptualizer. The

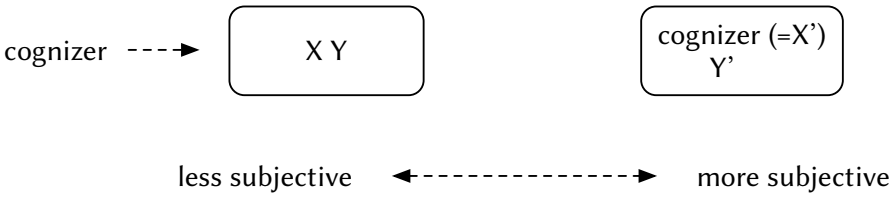


Figure 5.5.: Possible roles of the cognizer (Chun & Zubin 1990)

figure shows that the cognizer is either an external observer who describes the feeling of someone or the (structurally present) experiencer her- or himself. *X* and *Y* stand for structural arguments which are localized in the situation expressed by a sentence. What is also captured in the figure is that subjectivity, which is conceptualized as a continuum, appears to be stronger when the cognizer is realized in the structure, i.e., in the case of an internal cognizer. In EO structures, the cognizer is part of the linguistic structure, which, under this view, indicates a high subjectivity value. This combines the two aspects described in the present section: EO statements are highly subjective and tend to express the perspective of someone who is structurally realized.

To sum up, EO verbs belong to the class of lexical subjective predicates which denote things about which speakers have personal opinions and can easily disagree. The obligatory presence of an experiencer in special EO structures, however, blocks the access to the (emotive-) evaluative judgment. The structures nevertheless allow for different perspectives. Presumably depending on the level of (conventionalized) expressiveness of the emotional concept, EO structures can be interpreted as statements of the outside non-experiential judge. To express the inner perspective of the experiencer, on the other hand, the speaker either reports what he knows or is the narrator of an FID context. Being a language where experiential perspective is constrained and marked differently, Japanese confirms the relevance of internal/external perspectives and non-1st person experiencers from a linguistic viewpoint.

5.4.3. Section summary

The chapter deals with different properties of special EO structures which can also be found in the non-experiential domain in order to ultimately identify the features specific to the psych domain in general and EO structures in particular. In the previous section, it has been shown that EO verbs share a considerable number of features with dispositional verbs, which lead to the assumption that EO structures carry evaluative semantics and that fact-selecting EO structures have a non-causative use as evaluative statements. To further deepen the connection between EO structures and evaluation, the present section discussed the properties of evaluative and emotive adjectival predicates. They also count as factive *that*-clause selecting predicates, which once again points to the close relationship between sentential subjects and evaluation. Moreover, in German, psych adjectives and adjectival structures involving grading particles allow for the realization of a dative judge. I have suspected that in order to explicitly represent a judge as a case-marked argument the judgment itself needs to be emotion-related in some way.

The second part of the section dealt with subjectivity and perspective-taking, i.e., concepts that are are directly associated with (emotive-) evaluative structures. The discussion confirmed the relevance of experiential awareness and attitude stated in previous sections, i.e., that the experiencer is a structurally realized judge who necessarily processes the situation, while access from a non-experiential autocentric stance is rather restricted. The section also pointed to some issues that are worth investigating further. For example, a more detailed investigation of the licensing conditions of a dative arguments in evaluative and psych adjective structures could shed more light on the conditions and restrictions for the expression of a case-marked judge and possibly strengthen the link to affectedness of the judge. Also, given the status of experiencers and agents in FID contexts and the link between structural effects and expressiveness. a more elaborated pragmatic investigation on contexts involving experience is necessary. Finally, it would be interesting to see whether we find reflexes of the discussed issues across languages, e.g., the licensing or marking of experiential vs. non-experiential judges or external/internal perspectives.

Evaluative adjectives, subjectivity and perspective

i. EO verbs are lexical subjective predicates and EO structures meet all the requirements for evaluative uses.

ii. The special feature of emotive-evaluative EO uses is that the experiential judge is part of the basic argument structure and expressed as an object.

iii. EO statements are primarily interpreted from the experiencer's perspective. In stative evaluative EO structures, experiencers function as intentional individuals and create FID contexts.

5.5. Summary and conclusion of Chapter 5

In this chapter I have approached the properties of stative EO verbs by investigating psych features in the non-experiential domain, i.e., the EO verbs' event structure, their available argument structure operations and their selectional properties. The leading question of the chapter was, what we could learn about EO verbs based on these comparisons. I summarize the findings in the following.

Section 5.1 recalls existing analyses of stative EO structures as structures expressing stative causation and compares them with *obstruct*-type (LOC) verbs, which have been characterized as having the same causal and temporal implications. First of all, the section provided strong evidence for the stative causation analysis, according to which special EO statements denote eventualities involving a causal relation between two spatio-temporal contiguous eventualities. This characterization is based on striking similarities between the two classes. For example, both verb classes stand out from most other verb types by licensing stative passives with the realization of a prepositional phrase representing an non-external argument (*The chair is covered by the sheet*/ *Laura is delighted by the visit*). Furthermore, considering that the stimuli of EO structures refer to abstract objects, we can conclude that not only states are involved in stative causative structures. This is supported by the existence of stative trope causation. However, the special EO structures also include cases of non-contiguous relations: fact-selecting EO structures seem not to rely on the parallel spatio-configurational "existence" of the stimulus and the experiencer's state. It became clear in the subsequent sections, how this subclass could be dealt with.

Section 5.2 has shown that EO verbs with propositional arguments are fully factive p-attitude verbs. One particular point was the association between true factivity and emotive semantics as the existence of logically factive presuppositions is restricted to cognitive-emotive (as opposed to cognitive-only) predicates (*regret* vs. *realize*). In con-

trast to traditional p-attitude verbs, factive EO verbs have factual subjects (instead of object complement clauses), which does not affect their status as intensional environments. The structural status of the embedded proposition only becomes relevant if EO statements are embedded in hypothetical or non-experiential speaker contexts. In general, along with statements involving volitional agents, EO structures are quasi-intensional, i.e., the intentional individual is manifested in the actual world and the corresponding attitudes depend on her- or his attitude. This corresponds to already existing characterizations of experiencers as agent-like referents. As a result, together with the observation that factive EO verbs may express relations between spatio-temporal distant referents, the attitudinal character of EO verbs gave rise to the claim that there is a non-causative use of the structure type.

Section 5.3 captured the fact that factive EO verbs have sentential subjects, a property they share with the non-experiential class of dispositional verbs. A comparison was carried out based on existing assumptions about the preconditions for sentential subject licensing, assuming that this structural cue is indicative of specific semantic features. For dispositional verbs, it has been argued that their combination of causative and evaluative semantics is responsible for the sentential subject selection. The causative component encodes a relation between the stimulus and a result state, whereas the evaluative component entails information about a value which can be read from the result state and attributed to a state of affairs encoded in the sentential subject. Given the previous EO characterizations as causative and attitude verbs, this is a valid explanation for their sentential subject licensing, too. Based on the parallels between EO and dispositional verbs, I assume, unlike previous approaches, that special EO structures are not necessarily abstract because they "happen" in the mental domain, but because they can serve as evaluative statements.

Section 5.4 seized the idea of evaluative uses of stative EO structures and looks at what adjectival evaluative and evaluative-emotive contexts can reveal about the nature of EO structures. First of all, the findings once again emphasize the link between evaluation and sentential subjects as evaluative and psych adjectives also select such arguments. As such, they form stimulus-oriented statements in which a value is attributed to a state of affairs, instead of being state-denoting predicates (e.g. *being boring* instead of *being bored*). Moreover, the option to insert a judge on experiential grounds in form of a free dative argument in German again points to the relevance of the association between emotive affection and evaluation. It has also been demonstrated that EO verbs are subjective predicates and the structures they build attribute values from an internal

viewpoint of a structurally present experiencer. Statements which are not based on the experiencer's perspective depend on the availability of certain conventionalized signals (e.g. facial expressions). In languages such as Japanese the internal/external distinction can be morphologically marked. In general, the findings of the section indicate once more that value judgments and experiential affectedness are similarly related in the adjectival domain, which supports the idea of EO structures having an evaluative use and objects that may serve as experiential judges (apart from a causative relation to a primarily affected object).

As for the main objective of the chapter, i.e., the extrapolation of EO-specific features, the discussion made clear that stative EO structures resemble non-experiential structures to the point that the experiential semantics appears to be the only EO-specific feature. This includes the structural presence of an individual identifying the stimulus and her or his relation to it. Clearly, this holds for psych verbs in general, and, in part, for structures involving volitional agents. Therefore, the unique feature of EO structures is that this kind of individual occupies the object position.

6. General summary and conclusions

This dissertation aims to provide for a better understanding of stative experiencer object (EO) structures of the type 'x_{STIM} amazes/frightens/appeals-to y_{EXP}'. The significance of this issue arises out of the observation that such structures exhibit psych properties, which means that they behave differently from other verb classes and structure types when it comes to central linguistic phenomena, e.g., binding, control, extraction, among others. This behavior requires explanation, especially regarding the question whether we can assume that a different set of rules indeed holds for a conceptually defined class of predicates, i.e., based on the EO verbs' relation to the mental domain.

A second motivation for approaching the behavior of EO verbs is that, as a phenomenon itself, psych verbs are often used as an evidential basis for insights about the linguistic system and interfaces. However, to be able to validate conclusions drawn from psych verbs, it is imperative to understand both their functioning as well as their interaction with linguistic aspects. The present work has taken new perspectives to advance the evaluation of the status of EO verbs.

First, to overcome the empirical problem with psych properties, two of them were tested experimentally for German. Second, following up on the question whether stative EO verbs exhibit a particular structure type, they have been closely examined with respect to the expression of causation and the selection of different types of stimuli. Third, a direct comparison of the structure of EO verbs with similar verbs was performed in order to identify and filter psych-specific features. I recapitulate the findings of the chapters in (6.1), which is followed by the conclusions and open questions that arise from these findings in (6.2).

6.1. Summary

Chapter 2 surveys previous findings in the field of psych verb research and highlights the challenges that these verbs pose for linguistic analyses. First, according to the Linking Problem, we cannot predict the structural realization of the experiencer, as it may

be realized as a subject (*love*-type verbs) or as an object (*please*-type). Most approaches agree that both verb types express stative eventualities, but that only the latter type involves causation, therefore promoting the stimulus argument to subject position instead of the experiencer. The second type of psych verb challenge, the Experiencer Object Problem, asks why structures of the type 'x_{STIM} – y_{EXP}' behave differently from other structures such as transitive causatives ('x_{CAU} – y_{TH}') and action verbs ('x_{AG} – y_{PAT}'). Observations of psych properties across quite a number of languages gave rise to the idea that EO verbs somehow have special argument, event or syntactic structures. It appears, however, that the class of EO verbs is rather heterogeneous when it comes to the aspectual features and the involvement of causation. Moreover, theories have very different views on the derivation of the alleged psych properties, including semantic, syntactic as well as discourse-/pragmatic approaches. Two main aspects of particular relevance for this dissertation evolved from the discussion: first, psych verb research wrestles with an empirical problem as many contrasts are exemplified with single examples and sometimes varying judgments. Second, the characterization of stative EO structures is often inconclusive and points to an intermediate status between established canonical causative and simple-relation stative structures, complicating the identification of features relevant for psych properties. Both aspects were studied in the subsequent chapters.

Chapter 3 examines two hypotheses about psych properties which give the impression that experiencer objects behave rather subject-like. First, similar to prototypical subjects in German, experiencer objects tend to occur sentence-initial, and second, like prototypical subjects, experiencer objects can bind anaphors embedded in their co-argument. These hypotheses were tested for German dative (*gefallen* 'appeal', *fehlen* 'miss') and accusative EO verbs (*verärgern* 'annoy', *erstaunen* 'astonish'), against causative and agentive verbs with the same case marking pattern (accusative *retten* 'rescue', *umarmen* 'hug'; dative *herunterfallen* 'fall down', *applaudieren* 'applaud'). Effectively, both psych properties have been confirmed. This reduces the empirical problem to a great extent, as EO structures appear to withstand controlled experimental designs involving multiple target structures. As already mentioned in the literature, the effects for dative EO verbs are stronger throughout the experimental results. This emphasizes the illusive status of accusative EO verbs, and for this very reason, they have been the focus of the discussion in the following chapters. The presented studies also look at exceptional linearization and binding irrespective of the licensing by special psych features, i.e., how objects may occur initially or be potential binders under the presence

of certain contextual influence for ordering issues and aspectual triggers in the case of binding. Taking such factors into consideration is crucial for the evaluation of genuine psych properties. Moreover the test structures needed to be controlled for the lexical-semantic ambiguities that come along with EO verbs. Testing stative EO structures ('x's behavior frightens y'), for example, requires the use of inanimate stimulus arguments. This helps to avoid agentive interpretations ('x_{AG} frightens y on purpose') which arguably do not exhibit psych properties. In light of the presented findings, the chapter confirmed that stative EO structures have an exceptional status.

Chapter 4 drills down on the properties of stative EO structures in detail, reviewing their semantics and, in particular, scrutinizing the properties of stimulus arguments. While the experiencer argument always represents sentient individuals, the type of referent of the stimulus argument is diverse. This diversity is often concealed because the stimulus-representing nominals, by themselves, are often underspecified. That is, sometimes stimulus nominals are placeholders for more complex referents and often they can represent more than just one type of referent, e.g., eventualities vs. propositions (*performance*-type nominals) or states vs. qualities (*honesty*-type). While "non-special" agentive and eventive EO structures select prototypical agent individuals and eventuality- or natural-force causers, the nature of the stimulus of stative EO structures is less conclusive. A closer look at the structures revealed that, alongside with concrete entities, events and states, EO verbs may also select abstract non-eventuality stimuli such as facts or qualities. The chapter presented several reflexes of the different stative EO verbs, i.e., they show varying compatibility with certain types of nominals (simple vs. derived nominals), they select different PPs in their use as participles (*von* 'by' vs. *über* 'about') and they attach different types of *because*-clauses (stimulus-specification vs. experiential reasoning), among other differences. What all stative EO structures share in common is the contextual salience of their arguments and the experiential awareness requirement. Also, the stimuli of stative EO verbs have a comparably vague status when it comes to causal efficacy.

The main theme of **Chapter 5** was to isolate stative EO verbs from other types of predicates. The comparison between EO and specific non-EO structures furthermore provides insights about the nature of stative EO structures. Since it is argued that these verbs express a causal relation between two concomitant states, the first reference class were non-experiential verbs of stative causation, i.e., locative (LOC) verbs such as 'surround' or 'cover'. The comparison revealed that both verb classes behave very similar. They exhibit the same diathesis alternations and, most convincingly, license the same

type of stative passive, which allows for the subject argument to be realized with a *von* 'by' phrase. The striking similarities support the idea of having a parallel analysis for LOC and EO verbs and not a EO-specific structure type. It has been left open, however, how exactly to deal with the existence of two opposing analyses (simple relation states vs. complex structure involving causation). Additionally, a major part of the chapter elaborated on the fact that many EO verbs license clausal arguments. Outside the domain of EO verbs this holds for verbs of propositional attitude (*know*, *believe*, *regret*), dispositional verbs (*endanger*, *improve*, *help*) and evaluative or psych adjectives (*be clever*, *be important*). The comparison with these predicates has shown that EO verbs are subjective predicates which build emotive-evaluative structures and create opaque environments. As for psych-specific features, it becomes apparent from all cases of comparison, that experiential awareness remains the relevant property that is limited to psych verbs.

6.2. Conclusion and outlook

Based on previous findings in the literature, the dissertation makes three major contributions: first, it provides an experimental verification of psych properties. Second, it refines assumptions regarding the nature of special EO structures and third, it provides insights into EO structures based on a detailed comparison with a number of non-EO predicates. In the following, I will discuss aspects that are relevant with respect to the initial psych verb discussion, and open issues resulting from the previous findings.

The primary motivation for EO verb research is to get to the bottom of **psych properties and the structure of EO verbs**. Apart from the discussion and validation of psych properties in Chapter 3, one objective of this dissertation was the identification of possible sources of the exceptional behavior of EO verbs. Since psych properties concern the entire class of stative EO structures, the critical property should not be subject to variation and should also not be found with other types of predicates. What stative EO verbs have in common is their conceptual-semantic definition as emotive predicates that necessarily involve a sentient individual which is realized as an object. Generally, such conceptual equality is often reflected in generalized argument and event structures. However, there have been indications that stative EO structures cannot be uniformly analyzed at this level, since they exhibit different aspectual (e.g. telic/non-telic; *surprise/bore*) and syntactic patterns (*x delights* y_{EXP}*'/'x makes* y_{EXP} *happy*) (cf. Chapter 2). Further support for this view comes from the existence and productivity of psych/non-psych

polysemies (cf. Chapter 4). In these cases, one and the same verb is used for non-psych eventualities or as an EO structure (*The nurse/the movie moved him*$_{PAT/exp}$), which makes specific lexical-semantic or syntactic EO structures even more unlikely. The identification of different stative EO substructures in Chapter 4 adds to this impression. Clearly, the critical EO property must be something that covers all structure types involved in the class of stative EO structures. Furthermore, the close resemblance to non-EO predicates revealed in Chapter 5 indicates that the structure type relevant for stative EO verbs is not reserved for them. What remains in search of the defining properties of stative EO structures is the status of the experiencer as cognitively participating individual, which speaks for discourse-pragmatic accounts on psych properties "on top" of basic argument and event structure. In general, the effects of discourse, evaluation, and subjectivity suggest to turn even more attention to the non-core grammatical aspects of psych verbs and experiencers. The variation within the class of stative EO verbs and the close proximity to non-EO verbs speak against a single EO-specific structure type at the level of lexicon and syntax.

Irrespective of the derivation of psych properties, attempts have been made for a lexical-semantic characterization of stative EO verbs. In this respect, **causative analyses** are the most frequently encountered type of analysis. According to most researchers, stative EO verbs do not only involve stative semantics but some additional aspect, which makes their structure lexically more complex compared to simple states (*love*-type, *resemble*-type). The findings in the present work provide further evidence for the characterization of EO structures as stative causative structures, i.e. by establishing the similarities between EO verbs and non-experiential predicates of stative causation (cf. Chapter 5). However, several doubts were raised about the EO verbs' status as proper causative predicates. First of all, EO verbs differ from lexical causative verbs (*break*-type verbs) (cf. Chapter 2). Moreover, it has been proposed that there is a relevant contrast between causer and subject matter stimuli with EO verbs at the thematic level (*The letter*$_{CAU}$*/her*$_{STIM}$ *health worried Laura*). A further indication for an EO use apart from a causative interpretation was that many EO verbs license factual arguments which usually do not qualify as prototypical causers. It has also been shown that these structures appear to allow for a temporal distance between the eventuality encoded in the stimulus and the experiencer's emotional state. This is in conflict with the spatio-temporal proximity condition of canonical causation, which requires a relation between two concomitant eventualities (cf. Chapter 4).

The findings so far indicate that at least a subclass of stative EO structures is not

compatible with traditional causative analyses. Instead, they exhibit properties which relate them to **evaluative structures**. That is, the licensing of propositional stimuli as comparative value emphasized the EO verbs' close semantic and structural relation to non-causative predications such as p-attitude, dispositional, and adjectival-evaluative statements. In particular, the semantic and structural proximity to dispositional verbs provides rather strong evidence for the EO verb's role as evaluative predicates. Dispositional verbs express value judgments based on their concrete meaning, i.e., for example, evaluative *gefährden* ('endanger') means that something is bad whereas *verbessern* ('improve') makes something good. It has been shown that EO verbs work in the same way. For example, *verärgern* ('anger') and *erfreuen* ('delight') may evaluate something as bad or good. Nevertheless, both dispositional and EO verbs involve causative semantics as well. Such a co-occurrence of affectedness and value judgment has also been relevant for adjectival structures, as, in German, this combination licenses the realization of argument-like experiential judges, e.g., *Das ist ihm$_{JUDGE}$ peinlich/zu süß* ('That is embarrassing/ too sweet to him.').

It follows from the discussion that we have **two dimensions of stative EO verb meaning**, which means that they have potential for both the expression of causative eventualities on the one hand and evaluative statements on the other hand. In fact, the interplay of causation and evaluation in psych constructions has been recognized before, e.g. in Caluianu (2005), who argues that emotion concepts consist of several components or process-types, which can be targeted by different means in different languages, for example, by distinct morphological markings in Japanese as mentioned above in Section 5.4.2. The processes relevant for the present purposes are illustrated in Figure 6.1.

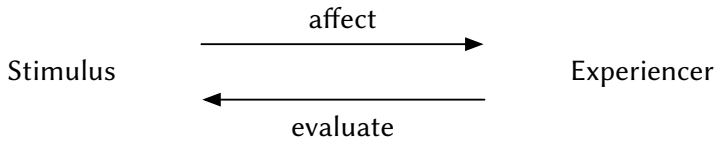


Figure 6.1.: Two dimensions of stative EO verb meaning

As illustrated, *affectedness* is depicted as coming from the stimulus and being targeted at the experiencer, while *evaluation* runs the other way around. This corresponds to the conceptualization of causation involving an object affected by a causer and evaluation as value attribution by an individual directed towards the stimulus. Whereas in Japanese

an adjective/verb distinction captures the different aspects of emotions, I assume that, in German, one and the same stative EO verb has the potential to express experiential affectedness as well as experiential evaluation.

The assumption of non-causative evaluative EO structures has two advantages which both concern the concept of causation. First, as for the expression of linguistic causation, it has been shown that some EO structures can express non-proximate relations between a stimulus and an experiential state. The presence of evaluative meaning could license this distance and maintain the idea that lexical causative verbs usually express direct causation. As a consequence, structures with lexical causative verbs that express non-proximate causal relations also need to express concepts beyond causality – evaluativity being one candidate. As a second advantage, the concept of causal efficacy as an ontological property of objects in the world has been consulted to evaluate the type of stimulus of stative EO structures. Traditionally, individuals, eventualities, and qualities (or tropes) count as causally efficacious, while proposition-like objects, such as facts or possibilities, are less typical causers. This can be maintained if we assume that, in the case of EO verbs, factual stimuli are only hosted by non-causative EO structures. Why EO environments, nevertheless, give the impression that facts may serve as causers will be addressed in the following.

This dissertation had a strong focus on the **type of stimulus** that occurs with stative EO verbs, which has also been directly associated with the presence of causative and evaluative semantics of the verbs. Within the scope of thematic analyses, it has been suggested in the literature that the stimulus of stative EO structures represents subject matters which one can be worried or upset *about*, and not always causers *by* which we are affected emotionally. A closer look at the stimuli and their properties revealed that stative EO structures contain different types of stimuli, among them are qualities and facts. Facts, and proposition-like objects in general, can be represented by nominalizations or *that*-clauses, which explains the EO verbs' regular selection of clausal arguments. It has been argued that the clausal stimuli of EO structures are propositional rather than eventive, because they create opaque environments in which reference depends on the experiencer's state of knowledge (cf. Chapters 4 and 5). Furthermore, such types of arguments do not count as causally efficacious. Therefore, the evaluative use of EO verbs, in which causation is not part of the predication, is a good candidate for the analysis of such structures.

However, although it would be an interesting correspondence between form and meaning, it should not be assumed that all EO structures which involve sentential

subjects constitute evaluative structures. A complicating aspect that has been mentioned in Chapter 4 is that clausal arguments may also refer to mental representations of states of affairs within the experiencer, which would again correspond to the concept of internal causation with EO verbs. This is because, under this view, the stimulus argument refers to a state of affairs (fact, possibility, etc.) which is a participant of a mental event ('f annoys y_{EXP}'), similar to agents which are participants of causing eventualities ('x broke the window'). Such a mental representation can be viewed as a non-actual eventuality or state of affairs, which is "relived" experiencer-internally. This explains why the stimulus still constitutes an opaque environment even if it represents an eventuality-denoting argument. As for the linguistic representation, it is conceivable that the information encoded in the *that*-clause is always accompanied by silent eventuality-denoting predicates of some kind, e.g., '*imagining* that', '*realizing* that' or '*hearing* that'. Such mental events always bear a simultaneity relation to the experiential state, which is in accordance with analyses of EO verbs as verbs of internal stative causation. Figure 6.2 illustrates this relation.

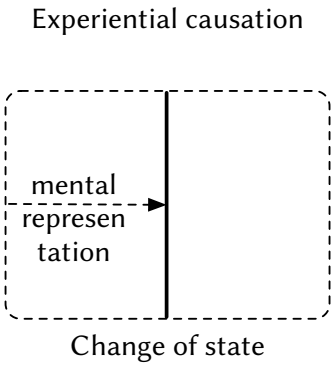


Figure 6.2.: Experiential causation as internal causation

Although the above mentioned characterizations of EO structures are far from being a precise definition, they nevertheless bring us one step closer to understanding the semantics and interpretation options of stative EO structures, more specifically, of how their stimuli are related to the experiencer and how important the role of the experiencer is. Certainly, the concept and linguistic relevance of the stimulus of special EO structures presented here, i.e., their types (quality, facts, eventualities) and location (physical vs. mental space), clearly requires further empirical support. This holds especially for the very thin line between an internally represented state of affairs which is accompanied by emotions contra having attitudes towards facts. In order to give some

idea about my own understanding of the stimulus distinction, I would like to draw attention to the case of Clive Wearing who has a particularly serious case of amnesia and is unable to preserve new memories.[1]. In a 2005 report[2] about the type of memory Clive has, his wife Deborah describes the situation as follows: "(...) the amnesia is rubbing everything out, immediately after it happens. Not only does he not remember anything that has happened to him since he was ill – he doesn't remember anything that has ever happened to him in the whole of his life. He knows *about* things – He knows *that* he worked for the BBC, but he does not have any event in his mind that he can bring to his mind's eye. He knows that we are married – he does not remember the wedding."[3] Her description not only sets apart mental events from facts related to the same state of affairs, but also relates the factive uses to grammatical means such as *about* PPs and *that*-clauses, as is has been discussed before.

This dissertation addressed a great number of aspects that require **further theoretical considerations and experimental validation**. The two major issues that I would like to point out here are of empirical and of conceptual nature. First, it is worthwhile, and even essential at some points, to follow up on the presented experimental work, for example, by testing exceptional linearization and binding in languages other than German, by considering further psych properties such as control and extraction phenomena, and by testing the emergence of psych properties more carefully with respect to the established EO substructures (Section 4) or the resembling non-EO structures (5). The second issue that requires a closer investigation is the role of mental representations in the analyses of EO structures, especially the contrast between states of affairs as event participants and states of affairs as targets of value judgments, followed by a formalization within established semantic theories.

As shown throughout this dissertation, the nature and behavior of psych verbs touch on the very central issues of linguistics, philosophy of language, and cognitive science. Psych verbs are a promising class of predicates that allow a view into the lexicon-syntax interface and its interaction both with the discourse-pragmatic system, as well as with extra-linguistic modules. This dissertation brings together empirical and theoretical considerations to shed light onto the dominant characteristics of this special verb class.

[1] The neurologist Oliver Sacks describes in an article that Clive Wearing's memory lasts only for seconds (www.newyorker.com/magazine/2007/09/24/the-abyss). The film "Prisoner of Consciousness" documents the case.

[2] http://www.imdb.com/title/tt0482648

[3] www.youtube.com/watch?v=k_P7Y0-wgos (Approximately at 17:30)

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A. Verbs and test structures of Study I: Linearization study

A.1. List of verbs in Study I

The verbs used in the linearization studies are given in Table A.1. The study contained 16 verbs per class. Accusative and dative experiencer verbs were tested in separate studies, whereby both studies had the same test design and very similar lexical material.

A.2. List of test structures in Study I

The items given below consist of the licensing context followed by the target sentences with subject-before-object order (less acceptable condition) and including English translations. In the experiment, all given target sentences were also presented in reverse order (object-before-subject) and with the all new context "Was gibt's Neues?" ('What's new?'), respectively.

Accusative experiencer object verbs

1. **Context**: Der Großteil der Bergsteigertruppe hatte keine Probleme.
   Target: Der Rucksack hat den Leiter geplagt.

   Translation:
   Most of the mountaineers had no problems.
   The backpack annoyed the guide.

2. Einige Mitglieder der Rettungsmannschaft hatten Probleme mit der Ausrüstung.
   Der Anzug hat den Taucher erstaunt.

   Some members of the rescue team had problems with the equipment.
   The suit astonished the diver.

3. Einige der Mitarbeiter haben sich wieder erholt.
   Der Anschlag hat den Wachmann entmutigt.

   Some employees got better again.
   The attack discouraged the security guard.

4. Der Großteil der Reisenden hat sich noch nicht erholt.
   Die Spritze hat den Fahrer begeistert.

   Most of the passengers did not recover yet.
   The injection enthused the driver.

5. Die meisten Bediensteten hatten eine erholsame Nacht.
   Der Krawall hat den Gärtner verängstigt.

   Most of the attendants had a restful night.
   The din frightened the gardener.

6. Die Mannschaft wartet auf den Reisebus.
   Das Taxi hat den Torwart interessiert.

   The team is waiting for the tour coach.
   The Taxi interested the keeper.

7. Die meisten Marktverkäufer hatten Angst vor der Zukunft.
   Der Umsatz hat den Fleischer erfreut.

   Most of the market sellers were feared the future.
   The sales delight the butcher.

8. Die meisten Bandmitglieder wollen weitermachen.
   Der Erfolg hat den Sänger gelangweilt.

   Most of the band members wanted to go on.
   The success bored the singer.

9. Die meisten der Angestellten hatten keine Probleme mit der Kantine.
   Der Nachtisch hat den Lehrling angewidert.

   Most of the employees had no problem with the canteen.
   The dessert disgusted the apprentice.

10. Die meisten Sportler hatten Probleme beim Training.
    Die Übung hat den Turner entzückt.

Most of the athletes had problems with the training.
The exercise enraptured the gymnast.

11. Einige der Dorfbewohner hatten Glück mit dem Wetter.
    Der Hagel hat den Bauern frustriert.

    Some of the villagers have been lucky with the weather.
    The hail frustrated the farmer.

12. Die meisten Küchenkräfte haben gar nichts bemerkt.
    Der Alarm hat den Spüler gewundert.

    Most of the kitchen staff haven't noticed anything.
    The alarm wondered the dishwasher.

13. Die meisten Spieler hatten keine Probleme beim Spiel.
    Die Sonne hat den Stürmer beunruhigt.

    Most players had no problems playing.
    The sun worried the striker.

14. Die meisten Mitarbeiter der Praxis hatten kein Problem mit der Untersuchung.
    Die Nadel hat den Doktor erschreckt.

    Most employees of the doctor's office had no problem with the examination.
    The needle scared the doctor.

15. Die meisten Bürger hatten keine Probleme mit dem Bahnübergang.
    Die Schranke hat den Pfarrer aufgeregt.

    Most people had no problems with the railroad crossing.
    The gate upset the pastor.

16. Die meisten Künstler hatten Erfolg beim Wettbewerb.
    Der Auftritt hat den Geiger enttäuscht.

    Most artists were successful at the competition.
    The performance disappointed the violinist.

Non-experiential verbs with accusative objects (inanimate-subject licensing)

1. Der Großteil der Bergsteigertruppe hatte keine Probleme.
   Der Rucksack hat den Leiter behindert.

Most of the mountaineers had no problems.
The backpack hindered the guide.

2. Einige Mitglieder der Rettungsmannschaft hatten Probleme mit der Ausrüstung.
   Der Anzug hat den Taucher geschützt.

   Some members of the rescue team had problems with the equipment.
   The suit protected the diver.

3. Einige der Mitarbeiter haben sich wieder erholt.
   Der Anschlag hat den Wachmann changed.

   Some employees got better again.
   The attack discouraged the security guard.

4. Der Großteil der Reisenden hat sich noch nicht erholt.
   Die Spritze hat den Fahrer geheilt.

   Most of the passengers did not recover yet.
   The injection healed the driver.

5. Die meisten Bediensteten hatten eine erholsame Nacht.
   Der Krawall hat den Gärtner geweckt.

   Most of the attendants had a restful night.
   The din woke the gardener up.

6. Die Mannschaft wartet auf den Reisebus.
   Das Taxi hat den Torwart abgeholt.

   The team is waiting for the tour coach.
   The Taxi picked the keeper up.

7. Die meisten Marktverkäufer hatten Angst vor der Zukunft.
   Der Umsatz hat den Fleischer gerettet.

   Most of the market sellers were feared the future.
   The sales protected the butcher.

8. Die meisten Bandmitglieder wollen weitermachen.
   Der Erfolg hat den Sänger zerstört.

   Most of the band members wanted to go on.
   The success destroyed the singer.

9. Die meisten der Angestellten hatten keine Probleme mit der Kantine.
   Der Nachtisch hat den Lehrling vergiftet.

   Most of the employees had no problem with the canteen.
   The dessert poisoned the apprentice.

10. Die meisten Sportler hatten Probleme beim Training.
    Die Übung hat den Turner verbessert.

    Most of the athletes had problems with the training.
    The exercise improved the gymnast.

11. Einige der Dorfbewohner hatten Glück mit dem Wetter.
    Der Hagel hat den Bauern verletzt.

    Some of the villagers have been lucky with the weather.
    The hail injured the farmer.

12. Die meisten Küchenkräfte haben gar nichts bemerkt.
    Der Alarm hat den Spüler gewarnt.

    Most of the kitchen staff haven't noticed anything.
    The alarm warned the dishwasher.

13. Die meisten Spieler hatten keine Probleme beim Spiel.
    Die Sonne hat den Stürmer geblendet.

    Most players had no problems playing.
    The sun bedazzled the striker.

14. Die meisten Mitarbeiter der Praxis hatten kein Problem mit der Untersuchung.
    Die Nadel hat den Doktor infiziert.

    Most employees of the doctor's office had no problem with the examination.
    The needle infected the doctor.

15. Die meisten Bürger hatten keine Probleme mit dem Bahnübergang.
    Die Schranke hat den Pfarrer aufgehalten.

    Most people had no problems with the railroad crossing.
    The gate hold the pastor back.

16. Die meisten Künstler hatten Erfolg beim Wettbewerb.
    Der Auftritt hat den Geiger blamiert.

Most artists were successful at the competition.
The performance disgraced the violinist.

Dative experiencer object verbs

1. **D**er Großteil der Bergsteigertruppe hatte keine Probleme mit der Ausrüstung.
   Der Rucksack hat dem Leiter wehgetan.

   Most of the mountaineers had no problems with the equipment.
   The backpack hurt the guide.

2. Die meisten Redner fanden schöne Worte für das Brautpaar.
   Die Ansprache ist dem Trauzeugen schwergefallen.

   Most speakers had fine word for the newlyweds.
   The speech was difficult for the groomsman.

3. Die meisten Insassen sind geflohen.
   Der Ausbruch hat dem Räuber leidgetan.

   Most inmates had fled.
   The robber felt sorry because of the jailbreak.

4. Der Großteil der Marktverkäufer war unzufrieden mit dem Händler.
   Die Ware hat dem Fleischer geschmeckt.

   Most of the marketers were dissatisfied with the merchant.
   The goods were tasty for the butcher.

5. Die meisten Teilnehmer der Auktion waren gelangweilt. Das Gemälde ist dem Kunsthändler nahegegangen.

   Most participants of the auction were bored.
   The painting affected the art dealer.

6. Die meisten Bandmitglieder wollten weitermachen.
   Der Ausstieg ist dem Sänger leichtgefallen.

   Most band member wanted to go on.
   The exit was easy for the singer.

7. Die meisten Schüler haben erfolgreich bestanden.
   Das Gedicht ist dem Streber entfallen.

Most of the students passed successfully.
The poem slipped the mind of the geek.

8. Die meisten Mitarbeiter waren unzufrieden mit der neuen Einteilung.
   Dem Lehrling hat die Uhrzeit zugesagt.

   Most employees were unhappy with the new scheduling.
   The time appealed to the apprentice.

9. Die meisten Parlamentsmitglieder hatten keine Probleme mit der Diskussion.
   Die Frage hat dem Kanzler missfallen.

   Most members of the parliament had problems with the discussion.
   The chancellor disliked the question.

10. Die Mannschaft hatte keine Probleme mit der Versorgung.
    Das Essen ist dem Torwart vergangen.

    The team had no problems with the accommodation.
    The food put the keeper off.

11. Die meisten Mitarbeiter auf der Station haben nichts bemerkt bei der Visite.
    Die Wunde ist dem Pfleger aufgefallen.

    Most employees in the ward haven't noticed anything during the round.
    The wound attracted the attention of the nurse.

12. Die meisten Kandidaten waren ratlos.
    Die Antwort ist dem Rentner eingefallen.

    Most of the candidates were clueless.
    The answer sprung to mind of the retiree.

13. Die meisten Sportler hatten keine Lust auf das Training.
    Die Übung hat dem Turner gefallen.

    Most athletes were not in the mood for training.
    The routine appealed to the gymnast.

14. Die meisten Mitarbeiter waren unzufrieden mit der neuen Sitzordnung.
    Die Lösung hat dem Kellner eingeleuchtet.

    Most employees were unhappy with the new seating arrangement. The solution made sense to the waiter.

15. Die meisten Spieler haben sofort aufgehört.
    Der Fehler ist dem Stürmer entgangen.

    Most of the players stopped immediately.
    The striker failed to notice the mistake.

16. Der Großteil der Reisenden wollte den Urlaub am liebsten sofort wiederholen.
    Dem Fahrer hat die Heimat gefehlt.

    Most passengers would have loved to repeat their vacation.
    The driver missed the homeland.

Non-experiential verbs with 'unintentional causer' datives

1. Die meisten der Mitarbeiter hatten keine Probleme beim Einsatz.
   Das Gewehr ist dem Wachmann verlorengegangen.

   Most employees had not problems during the operation.
   The guard's rifle became lost.

2. Die meisten Gäste haben sich benommen.
   Die Flasche ist dem Stammgast ausgekippt.

   Most guests behaved well.
   The regular dropped the bottle down.

3. Die meisten Mitglieder des Rettungsteams waren bereit für den Einsatz.
   Der Anzug ist dem Taucher eingelaufen.

   Most members of the rescue team were ready for action.
   The diver's suit shrunk.

4. Der Großteil der Köche hat sich gut geschlagen.
   Der Nachtisch ist dem Hilfskoch angebrannt.

   Most cooks did well.
   The assistant cook's desert scorched.

5. Der Großteil der Mitarbeiter hatte keine Probleme bei der Untersuchung.
   Die Nadel ist dem Doktor abgebrochen.

   Most employees had not problems with the examination.
   The doctor broke the needle.

6. Die meisten Bewohner hatten keine Probleme mit den Bauarbeiten.
   Der Keller ist dem Winzer vollgelaufen.

   Most residents had no problems with the construction works.
   The basement wine maker's basement swamped.

7. Der Großteil der Schulklasse ist inzwischen im Ferienlager angekommen.
   Das Benzin ist dem Lehrer ausgelaufen.

   The majority of the class arrived at summer camp by now.
   The teacher run out of gas.

8. Die meisten Dorfbewohner waren vorbereitet auf die Feiertage.
   Die Butter ist dem Bauern ausgegangen.

   Most villagers were prepared for the holidays.
   The farmer ran out of butter.

9. Die meisten Besucher hatten Spaß mit der neuen Achterbahn.
   Die Brille ist dem Prüfer runtergefallen.

   Most visitor had fun with the new roller coaster.
   The inspector lost the glasses.

10. Alle waren bereit für die Besichtigung.
    Der Schlüssel ist dem Makler abgebrochen.

    Everyone was ready for the viewing of the apartment.
    The realtor's key got broken.

11. Die meisten Künstler freuen sich auf den ersten Auftritt der Saison.
    Das Kostüm ist dem Dompteur zerrissen.

    Most artists are excited for the first gig of the season.
    The animal trainer's dress ruptured.

12. Der Großteil der Besatzung hatte keine Probleme mit den Turbulenzen.
    Der Kaffee ist dem Steward umgekippt.

    The majority of the crew had no problems with the turbulences.
    The steward tipped the coffee over.

13. Die meisten Ladenbesitzer hatten keine Probleme mit dem großen Stromausfall.
    Die Sahne ist dem Bäcker verschimmelt.

Most storekeepers had no problems with the big blackout.
The baker's creme got moldy.

14. Die meisten Pensionsgäste haben ihr Zimmer angemessen hinterlassen.
Das Waschbecken ist dem Geschäftsmann übergelaufen.

Most guests left their room in an appropriate condition.
The business man's sink overflowed.

15. Die meisten Gäste hatten keine Probleme mit dem außergewöhnlichen Essen.
Das Gebiss ist dem Nachbarn zerbrochen.

Most guests had no problems with the extraordinary food.
The neighbor broke the ivories.

16. Die meisten Bürger haben ihre Häuser vor dem Gewitter geschützt.
Die Scheune ist dem Landwirt abgebrannt.

Most people protected their houses from the thunderstorm.
The farmer's barn burned down.

Table A.1.: Verbs used in study I

	accusative		dative	
	experiencer	non-experiencer	experiencer	non-experiencer
1	*plagen*	*behindern*	*wehtun*	*verloren gehen*
	'annoy'	'hinder'	'be difficult'	'become lost'
2	*erstaunen*	*schützen*	*schwerfallen*	*auskippen*
	'astonish'	'protect'	'hurt'	'tip'
3	*entmutigen*	*verändern*	*leidtun*	*einlaufen*
	'discourage'	'change'	'feel sorry'	'shrink'
4	*begeistern*	*heilen*	*schmecken*	*anbrennen*
	'enthuse'	'heal'	'have a taste'	'scorch'
5	*verängstigen*	*wecken*	*nahegehen*	*abbrechen*
	'frighten'	'wake up'	'affect'	'break'
6	*interessieren*	*abholen*	*leichtfallen*	*volllaufen*
	'interest'	'pick up'	'be easy'	'swamp'
7	*erfreuen*	*retten*	*entfallen*	*auslaufen*
	'delight'	'rescue'	'slip the mind'	'leak/run out'
8	*langweilen*	*zerstören*	*zusagen*	*ausgehen*
	'bore'	'destroy'	'appeal'	'run out'
9	*anwidern*	*vergiften*	*missfallen*	*runterfallen*
	'disgust'	'poison'	'dissatisfy'	'fall down'
10	*entzücken*	*verbessern*	*vergehen*	*kaputtgehen*
	'enrapture'	'improve'	'put off'	'get broken'
11	*frustrieren*	*verletzen*	*auffallen*	*zerreißen*
	'frustrate'	'injure'	'attract attention'	'rupture'
12	*wundern*	*warnen*	*einfallen*	*umkippen*
	'wonder'	'warn'	'spring to mind'	'tip over'
13	*beunruhigen*	*blenden*	*gefallen*	*verschimmeln*
	'worry'	'bedazzle'	'appeal'	'get moldy'
14	*erschrecken*	*infizieren*	*einleuchten*	*überlaufen*
	'scare'	'infect'	'make sense'	'flood'
15	*aufregen*	*aufhalten*	*entgehen*	*zerbrechen*
	'upset'	'hold back'	'fail to notice'	'break'
16	*enttäuschen*	*blamieren*	*fehlen*	*abbrennen*
	'disappoint'	'disgrace'	'miss'	'burn away'

B. Verbs and test structures of Study II: Exceptional binding

B.1. List of verbs in Study II

The verbs of study II are listed in Table B.1. The classes were represented by 12 verbs in each case. The main restriction for the number of verbs comes from the preposition selection with accusative verbs (see Section 3.2.3, example 33) and the auxiliary selection of the dative EO verbs (*have*- instead of *be*-type auxiliary).

Table B.1.: Verbs used in study II (Binding study)

	accusative		dative	
	experiencer	non-experiencer	experiencer	non-experiencer
1	*deprimieren* 'depress'	*begrüßen* 'welcome'	*schmeicheln* 'flatter'	*widersprechen* 'contradict'
2	*verärgern* 'annoy'	*beraten* 'counsel'	*genügen* 'suffice'	*antworten* 'answer'
3	*entsetzen* 'horrify'	*kritisieren* 'criticize'	*leidtun* 'feel sorry'	*applaudieren* 'applaud'
4	*betrüben* 'sadden'	*überprüfen* 'check'	*gefallen* 'appeal'	*zuhören* 'listen'
5	*verwundern* 'amaze'	*hänseln* 'tease'	*einleuchten* 'make sense'	*drohen* 'threaten'
6	*erstaunen* 'astonish'	*besuchen* 'visit'	*imponieren* 'impress'	*gehorchen* 'obey'
7	*erfreuen* 'delight'	*schlagen* 'beat'	*fehlen* 'miss'	*helfen* 'help'
8	*schockieren* 'shock'	*untersuchen* 'examine'	*passen* 'suit'	*zuschauen* 'watch'
9	*amüsieren* 'amuse'	*unterstützen* 'support'	*zusagen* 'appeal/be congenial'	*kündigen* 'terminate sb.'s employment'
10	*bestürzen* 'bother'	*umarmen* 'hug'	*ausreichen* 'be enough'	*gratulieren* 'congratulate'
11	*empören* 'incense'	*anrufen* 'call'	*wehtun* 'hurt'	*absagen* 'cancel on'
12	*beunruhigen* 'wonder'	*ausfragen* 'question'	*stinken* 'stink/dislike'	*zustimmen* 'agree with'

B.2. List of test structures in Study II

In the following, the structures are presented as pairs carrying particular and generic aspect respectively.

Accusative experiencer object verbs

1. **Particular**: Gestern haben die Aussagen seiner Freunde jeden deprimiert.
   Generic: Im Allgemeinen können die Aussagen seiner Freunde jeden deprim-

ieren.

Translation:
Yesterday, the statements of their friends depressed everyone.
In general, the statements of their friends can depress everyone.

2. Letztens haben die Wünsche seiner Lebensgefährtin jeden verärgert.
   Hin und wieder können die Wünsche seiner Lebensgefährtin jeden verärgern.

   Recently, the wishes of their partner annoyed everyone.
   Every now and then, the wishes of their partner can annoy everyone.

3. Heute haben die Vorstellungen seiner Frau jeden entsetzt.
   Üblicherweise können die Vorstellungen seiner Frau jeden entsetzen.

   Today, the imaginations of their wife horrify everyone.
   Usually, the imaginations of their wife can horrify everyone.

4. Gestern haben die Ängste seiner Freunde jeden betrübt.
   Prinzipiell können die Ängste seiner Freunde jeden betrüben.

   Yesterday, the fears of their friends saddened everyone.
   In principle, the fears of their friends can sadden everyone.

5. Neulich haben die Meinungen seiner Schwester jeden verwundert.
   Hin und wieder können die Meinungen seiner Schwester jeden verwundern.

   Lately, the opinions of their sister amazed everyone.
   Every now and then, the opinions of their sister can amaze everyone.

6. Neulich haben die Probleme seiner Nachbarn jeden erstaunt.
   Tendenziell können die Probleme seiner Nachbarn jeden erstaunen.

   Lately, the problems of their neighbor astonished everyone.
   Generally, the problems of their neighbor can astonish everyone.

7. Gestern haben die Träume seiner Kinder jeden erfreut.
   Hin und wieder können die Träume seiner Kinder jeden erfreuen.

   Yesterday, the dreams of their kids delight everyone.
   Every now and then, the dreams of their kids can delight everyone.

8. Gestern haben die Vermutungen seiner Ärztin jeden schockiert.
   Im Normalfall können die Vermutungen seiner Ärztin jeden schockieren.

Yesterday, the assumptions of their doctor shocked everyone.
Normally, the assumptions of their doctor can shock everyone.

9. Neulich haben die Ideen seiner Frau jeden amüsiert.
Im Allgemeinen, können die Ideen seiner Frau jeden amüsieren.

Lately, the ideas of their wife amused everyone.
In general, the ideas of their wife can amuse everyone.

10. Heute haben die Ansichten seiner Freundin jeden bestürzt.
Hin und wieder können die Ansichten seiner Freundin jeden bestürzen.

Today, the views of their girlfriend bothered everyone.
Every now and then, the views of their girlfriend can bother everyone.

11. Damals haben die Beobachtungen seiner Exfrau jeden empört.
Hin und wieder können die Beobachtungen seiner Exfrau jeden empören.

Back then, the observations of their ex-wife incensed everyone.
Every now and then, the observations of their ex-wife incensed everyone.

12. Heute haben die Fragen seines Chefs jeden beunruhigt.
Tendenziell können die Fragen seines Chefs jeden beunruhigen.

Today, the questions of their boss wonder everyone.
Generally, the questions of their boss can wonder everyone.

Action verbs with accusative objects

1. Gestern haben die Eltern seiner Freunde jeden begrüßt.
Im Allgemeinen würden die Eltern seiner Freunde jeden begrüßen.

Yesterday, the parents of their friends greeted everyone.
In general, the parents of their friends would greet everyone.

2. Gestern haben die Ärzte seiner Lebensgefährtin jeden beraten.
Normalerweise würden die Ärzte seiner Lebensgefährtin jeden beraten.

Yesterday, the doctors of their partner advised everyone.
Normally, the doctors of their friends would advise everyone.

3. Gestern haben die Freundinnen seiner Frau jeden kritisiert.
Hin und wieder würden die Freundinnen seiner Frau jeden kritisieren.

Yesterday, the friends of their wife criticized everyone.
Every now and then, the friends of their wife would criticize everyone.

4. Gestern haben die Geschwister seiner Freunde jeden überprüft.
   Prinzipiell würden die Geschwister seiner Freunde jeden überprüfen.

   Yesterday the siblings of their friend checked everyone.
   In principle, the siblings of their friend would check everyone.

5. Neulich haben die Schulkameraden seiner Schwester jeden gehänselt.
   Hin und wieder würden die Schulkameraden seiner Schwester jeden hänseln.

   Lately, the classmates of their sister teased everyone.
   Every now and then, the classmates of their sister would tease everyone.

6. Damals haben die Kinder seiner Nachbarn jeden besucht.
   Normalerweise würden die Kinder seiner Nachbarn jeden besuchen.

   Back then, the children of their neighbor visited everyone.
   Usually, the children of their neighbor would visit everyone.

7. Gestern haben die Freunde seiner Kinder jeden geschlagen.
   Heutzutage würden die Freunde seiner Kinder jeden schlagen.

   Yesterday, the friends of their kids beat everyone.
   Nowadays, the friends of their kids would beat everyone.

8. Gestern haben die Assistenten seiner Ärztin jeden untersucht.
   Im Ernstfall würden die Assistenten seiner Ärztin jeden untersuchen.

   Yesterday, the assistants of their doctor examined everyone.
   In case of emergency, the assistant of their doctor would examine everyone.

9. Heute haben die Kollegen seiner Frau jeden unterstützt.
   Im Allgemeinen würden die Kollegen seiner Frau jeden unterstützen.

   Today, the colleagues of their wife supported everyone.
   In general, the colleagues of their wife would support everyone.

10. Gestern haben die Verwandten seiner Freundin jeden umarmt.
    Heutzutage würden die Verwandten seiner Freundin jeden umarmen.

    Yesterday, the relatives of their girlfriend hugged everyone.
    Nowadays, the relatives of their girlfriend would hug everyone.

11. Gestern haben die Anwälte seiner Exfrau jeden angerufen.
    Hin und wieder würden die Anwälte seiner Exfrau jeden anrufen.

    Yesterday, the lawyers of their ex-wife called everyone.
    Every now and then the lawyers of their ex-wife would call everyone.

12. Heute haben die Sekretärinnen seines Chefs jeden ausgefragt.
    Tendenziell würden die Sekretärinnen seines Chefs jeden ausfragen.

    Today, the secretary of their boss questioned everyone.
    In general, the secretary of their boss would question everyone.

Dative experiencer object verbs

1. Gestern haben die Aussagen seiner Partner jedem geschmeichelt.
   Generell können die Aussagen seiner Partner jedem schmeicheln.

   Yesterday the statements of their partner flattered everyone.
   Generally, the statements of their partner can flatter everyone.

2. Heute haben die Versprechen seiner Gläubiger jedem genügt.
   Im Allgemeinen können die Versprechen seiner Gläubiger jedem genügen.

   Today, the promises of their creditor was sufficient for everyone.
   In general, the promises of their creditors can be sufficient for everyone.

3. Heute haben die Ängste seiner Freunde jedem leidgetan.
   Grundsätzlich können die Ängste seiner Freunde jedem leidtun.

   Today, the fears of their friends made everyone feel sorry.
   Basically, the fears of their friends can make everyone feel sorry.

4. Letztens haben die Träume seiner Kinder jedem gefallen.
   Hin und wieder können die Träume seiner Kinder jedem gefallen.

   Today, the dreams of their kids pleased everyone.
   Every now and then, the dreams of their kids can please everyone.

5. Heute haben die Ideen seiner Mitarbeiter jedem eingeleuchtet.
   Tendenziell können die Ideen seiner Mitarbeiter jedem einleuchten.

   Today, the ideas of their co-workers made sense to everyone.
   In general, the ideas of their co-workers could make sense to everyone.

6. Neulich haben die Leistungen seiner Kollegen jedem imponiert.
   Hin und wieder können die Leistungen seiner Kollegen jedem imponieren.

   Lately, the achievements of their colleagues impressed everyone.
   Every now and then, the achievements of their colleagues can impress everyone.

7. Letztens haben die Weisheiten seiner Großeltern jedem gefehlt.
   Generell können die Weisheiten seiner Großeltern jedem fehlen.

   Recently, the wisdoms of their grandparents were missed by everyone.
   Generally, the wisdoms of their grandparents can be missed by everyone.

8. Gestern haben die Vorschläge seiner Nachbarn jedem gepasst.
   Grundsätzlich können die Vorschläge seiner Nachbarn jedem passen.

   Yesterday, the proposals of their neighbors were suitable to everyone.
   Basically, the proposals of their neighbors can be suitable to everyone.

9. Gestern haben die Ansichten seiner Freunde jedem zugesagt.
   Prinzipiell können die Ansichten seiner Freunde jedem zusagen.

   Yesterday, the views of their friends appealed to everyone.
   In principle, the views of their friends can appeal to everyone.

10. Heute haben die Aufmunterungen seiner Chefs jedem ausgereicht.
    Normalerweise können die Aufmunterungen seiner Chefs jedem ausreichen.

    Today, the encouragements of their boss were enough for everyone.
    Normally, the encouragements of their boss can be enough for everyone.

11. Letztens haben die Sorgen seiner Kinder jedem wehgetan.
    Grundsätzlich können die Sorgen seiner Kinder jedem wehtun.

    Recently, the worries of their children hurt everyone.
    Basically, the worries of their children can hurt everyone.

12. Neulich haben die Fragen seiner Eltern jedem gestunken.
    Im Allgemeinen können die Fragen seiner Eltern jedem stinken.

    Lately, the questions of their parents stinked to everyone.
    In general, the questions of their parents can stink to everyone.

Action verbs with dative objects

1. Heute haben die Sekretärinnen seiner Partner jedem widersprochen.
   Hin und wieder würden die Sekretärinnen seiner Partner jedem widersprechen.

   Today, the secretaries of their partner contradicted everyone.
   Every now and then, the secretaries of their partner would contradict everyone.

2. Gestern haben die Anwälte seiner Gläubiger jedem geantwortet.
   Generell würden die Anwälte seiner Gläubiger jedem antworten.

   Yesterday the lawyers of their creditor answered everyone.
   Generally, the lawyers of their creditor would answer everyone.

3. Neulich haben die Eltern seiner Freunde jedem applaudiert.
   Normalerweise würden die Eltern seiner Freunde jedem applaudieren.
   Lately, the parents of their friends applauded everyone.
   Normally, the parents of their friends would applaud everyone.

4. Gestern haben die Schulfreunde seiner Kinder jedem zugehört.
   Prinzipiell würden die Schulfreunde seiner Kinder jedem zuhören.

   Yesterday, the school friends of their kids listened to everyone.
   In principle, the school friends of their kids would listen to everyone.

5. Neulich haben die Anwälte seiner Mitarbeiter jedem gedroht.
   Hin und wieder würden die Anwälte seiner Mitarbeiter jedem drohen.

   Lately, the lawyers of their employees threatened everyone.
   Every now and then, the lawyers of their employees would threaten everyone.

6. Gestern haben die Freunde seiner Kinder jedem gehorcht.
   Normalerweise würden die Freunde seiner Kinder jedem gehorchen.

   Yesterday, the friends of their children obeyed everyone.
   Normally, the friends of their children would obey everyone.

7. Heute haben die Pfleger seiner Großeltern jedem geholfen.
   Grundsätzlich würden die Pfleger seiner Großeltern jedem helfen.

   Today, the nurses of their grandparents helped everyone.
   Basically, the nurses of their grandparents would help everyone.

8. Neulich haben die Kinder seiner Nachbarn jedem zugeschaut.
   Grundsätzlich würden die Kinder seiner Nachbarn jedem zuschauen.

   Lately, the kids of their neighbors watched everyone.
   Basically, the kids of their neighbor would watch everyone.

9. Heute haben die Berater seines Chefs jedem gekündigt.
   Hin und wieder würden die Berater seines Chefs jedem kündigen.

   Today, the advisors of their boss terminated everyone's employment.
   Every now and then, the advisors of their boss would terminate everyone's employment.

10. Letztens haben die Ehefrauen seiner Chefs jedem gratuliert.
    Prinzipiell würden die Ehefrauen seiner Chefs jedem gratulieren.

    Recently, the wives of their bosses congratulated everyone.
    In principle, the wives of their bosses would congratulate everyone.

11. Letztens haben die Lehrer seiner Kinder jedem abgesagt.
    Normalerweise würden die Lehrer seiner Kinder jedem absagen.

    Recently, the teachers of their children cancelled on everyone.
    Normally, the teachers of their children would cancel on everyone.

12. Letztens haben die Ärzte seiner Eltern jedem zugestimmt.
    Im Allgemeinen würden die Ärzte seiner Eltern jedem zustimmen.

    Recently, the doctors of their parents agree with everyone.
    In general, the doctors of their parents would agree with everyone.